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## KNOWLEDGE CENTER SECURITY



SPECIAL REPORT

It's a dangerous world, and not just outside the firewall. Clueless and disgruntled employees are an IT security problem, too. To help you out, we've compiled the hottest tips on topics such as identity management, insider abuse and instant messaging. **Stories begin on page 23.**

### ONLINE EXCLUSIVE

Is your company secure? Take our quiz to find out:

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MARIA RENDON

## Rapid-Reporting Mandate Adds to Compliance Woes

Companies need systems overhauls to meet Sarbanes-Oxley's 'material events' requirement

BY THOMAS HOFFMAN

Most companies that have taken steps to comply with the Sarbanes-Oxley Act have focused their energies on Section 404, a provision that requires businesses to document their financial-reporting controls and procedures.

But most IT managers have yet to tackle a potentially more onerous requirement: Section 409, which calls for companies to deliver timely reports to investors and other stakeholders on any "material

### SECTION 409 COMPLIANCE

#### What You Should Do

- Set up systems to automatically notify all key constituents, including senior executives, board members and investor-relations managers, of material events.
- For IT projects in particular, make sure your project management and accounting processes are intertwined so cost overruns can be quickly identified.
- Work with the finance and audit departments to develop a framework for financial reporting and documentation procedures.

events" that could affect the companies' finances or business operations.

That mandate, which the U.S. Securities and Exchange Commission is expected to start enforcing by 2005, could leave businesses with no choice but to make sweeping changes to their IT infrastructures in order to provide automated reporting capabilities that function at close-to-real-time speeds, CIOs and analysts said last week.

"There's a huge data and information infrastructure issue there that has to be tuned to respond to events — and most companies don't have these capabilities in place," said John Hagerty, an analyst at Sarbanes, page 14

## Feds Ponder MCI's Future

Despite settlement, carrier could lose government contracts

BY DAN VERTON

WorldCom Inc. may have overcome its problems with the Securities and Exchange Commission, but its political battles on Capitol Hill and throughout the halls of government are just beginning.

A U.S. District Court last week approved the SEC's amended proposed settlement with the telecommunications carrier, which is now doing business under its MCI brand. The settlement allows a civil penalty of \$2.25 billion to be satisfied by a much smaller payment to shareholders and bondholders of \$500 million in cash and \$250 million in common stock upon emergence

from Chapter 11 protection.

But a key issue that hasn't been resolved is whether MCI should be suspended or barred from holding government contracts. The Senate Judiciary Committee tomorrow will hold a hearing on the issue as part of a broader investigation into the ramifications of MCI's bankruptcy.

MCI has enough votes in the House Appropriations Com-

mittee to block an effort being pushed by rivals AT&T Corp. and Verizon Communications that would bar any extension of MCI government contracts

MCI Contracts, page 53

WORLD COM  
FALLOUT

### MCI's Share of the Pie

For a list of MCI's government contracts, visit our Web site:

QuickLink a3450  
www.computerworld.com

## Businesses See Wi-Fi as Potential Lure

Restaurants, hotels wooing customers with wireless access

BY BOB BREWIN

As public-access Wi-Fi "hot spots" percolate out of coffee shops and into the wider world of hotels, fast-food chains and other locations, many companies are starting to view the wireless technology as an essential amenity for attracting customers.

But what's still unclear is how much businesses can charge customers to use the Wi-Fi, page 16



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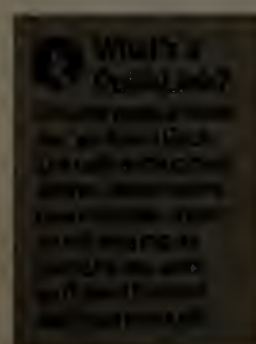
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### ONLINE

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## KNOWLEDGE CENTER SECURITY

### 65 Tips From Security Pros

It's a risky world out there. So we're providing scores of tips from IT security pros to help you protect your corporate assets. **PACKAGE BEGINS ON PAGE 23.**



- 26 **The Story So Far.** A quick tour through the history of IT security, including computer viruses, antivirus software and government efforts to deal with virus outbreaks.



**30 Know Thy Users.** With the proper identity management system, you can save money, make users happy and improve IT security. Users like Ann Garrett (left), chief information security officer for the state of North Carolina, offer strategies for making the right choices.

- 32 **Opinion:** Common names can create false positives in databases. In our post-9/11 world, that makes columnist Mark Hall a little nervous.

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- 36 **Strengthen Security During Mergers.** With merger and acquisition activity on the rise, managers need to know how to protect their company's assets and bolster security at the combined business.



ConocoPhillips' Bobby Gillham (left) and other experts offer suggestions.

- 38 **Thwart Insider Abuse.** Hackers get the media attention, but security pros know that the biggest threat comes from within. Here are recommendations to guard against insider abuse.

- 39 **Protect Privacy, Step by Step.** State, federal and international laws are making data privacy management a hot issue. Here are some tips for managing a privacy policy.

- 40 **Plug IM's Security Gaps.** With 25 million business users, instant messaging is the security problem you can't ignore. **ONLINE:** Companies share more of their tips for locking down instant messaging. QuickLink 39700

- 41 **Careers:** Security experts like Jim Wade (right) of KeyCorp say information security specialists have it a little better than other IT pros in today's job market — but not by much.



- 42 **The Almanac:** Secondhand computers rarely have sanitized hard drives, and spyware is lurking in your PC. These items are among the tidbits in this month's collection.

- 44 **QuickStudy:** A buffer overflow is the computer equivalent of pouring a gallon of water into a pint-size pot. Those excess data bits can overwrite and destroy information.

- 46 **The Next Chapter:** We asked experts to identify future IT security risks. They warned us about stolen fingerprint scans. Web services, "digital dimwits" and lightning-fast Internet attacks.

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**Thwarting Attacks on Apache Servers.** In this book excerpt, a hacker explains how intruders can gain access to your system — and what you can do to stop them. QuickLink 39583

**Social Engineering: A Matter of Trust.** Securing a network isn't just the job of the "tech people," says columnist Douglas Schweitzer. QuickLink 39213

**Tips for Securing Windows.** Patches, service packs, hot fixes and quick fixes — when should you install them, and when might they make things worse? Spirian's CTO offers advice. QuickLink 39506

**What's Inside a Hacker's Toolbox.** Hackers have access to knowledge about 802.11 — wouldn't you like to know what

they know? AirDefense Inc.'s Brian Moran takes a tour of a hacker's toolbox. QuickLink 39753

**Password Secrets.** Writing passwords in creative ways can make them easy to remember but difficult for anyone else to guess, writes columnist Peter H. Gregory. QuickLink 39427



## AT DEADLINE

### Sun Confirms Unix Deal With SCO . . .

Sun Microsystems Inc. confirmed that it has signed an expanded Unix technology licensing deal with The SCO Group Inc., which earlier this year filed suit against IBM for allegedly incorporating patented Unix code into Linux. Sun and Lindon, Utah-based SCO finalized the wider agreement in February, but SCO kept Sun's identity a secret until last week.

### . . . And Offers HP Migration Program

In other Sun news, the company said it plans to announce next week a server migration program aimed at users of Hewlett-Packard Co.'s Tru64 Unix operating system. The HP Away offering will include discounts aimed at enticing users running Tru64 Unix on Alpha-based servers to switch to Sun systems. Sun already has a similar program, called Blue Away, for IBM mainframe users.

### Peregrine Creditors Agree on Revamp

Peregrine Systems Inc., a San Diego-based vendor of asset management software, said it has reached agreement with its creditors and shareholders on a financial reorganization plan. Peregrine, which had to amend its original plan after some creditors balked at the provisions, now hopes to emerge from Chapter 11 bankruptcy next month.

### Oracle Ready to Upgrade Database

Oracle Corp. said it's beta-testing a database upgrade and plans to announce the software in September at its OracleWorld conference in San Francisco. The new version, which is being referred to as Oracle10i for now, will include new database management features, expanded clustering capabilities and added support for XML and Web services.

# PeopleSoft Users Fear Forced Database Move

Doubts linger, despite Oracle's promise that it won't require use of its software

BY MARC L. SONGINI

SOME PEOPLESOFT users last week said they fear that in addition to putting their business application investments at risk, Oracle Corp.'s \$6.3 billion bid to buy PeopleSoft Inc. could force them to migrate to Oracle's database.

Oracle supports its own E-Business Suite applications only on its namesake databases. But an Oracle spokeswoman said that the company wouldn't force PeopleSoft users who rely on rival databases such as DB2 or SQL Server to switch technologies and that all existing PeopleSoft applications would be supported for at least 10 years.

Nevertheless, several customers of Pleasanton, Calif.-based PeopleSoft and Denver-based J.D. Edwards & Co. — which PeopleSoft is expected to acquire under a deal announced last month — said they're worried that they will have to rip out IBM or Microsoft Corp. databases if Oracle's takeover bid succeeds.

"I have not been reassured by [Oracle]," said Ben Wilson, head of IT services for the government of Napa County in California. "We're convinced they want us to switch to the Oracle database in the future, and that would be an expensive proposition to us."

### Costly Migrations

Napa County now uses Microsoft's SQL Server 2000 database to support its PeopleSoft-based ERP system. Wilson said he plans to stick with the applications beyond the current version, PeopleSoft 8. Being forced to move to an Oracle database would cost the county tens of thousands of dollars more for software licenses than it spends now and

would require that its database administrators be retrained, he said.

"We are most concerned about possibly being forced to the Oracle database," said Bill Monroe, chief operating officer at the Texas Education Agency in Austin, which runs PeopleSoft applications that are supported by Microsoft and Sybase Inc. databases. A changeover would be disruptive and expensive, he said.

Oracle's promise to let users keep their current databases appears to contradict the position the company took when it

announced its takeover bid in early June, said Peg Nicholson, president of the PeopleSoft International Customer Advisory Board and CIO at Acushnet Co., a maker of golf equipment in Fairhaven, Mass.

But if Oracle were to force a migration, "a ton of work" would be needed to convert Acushnet's data from SQL Server to an Oracle database format and retrain its IT staff, Nicholson said. "We have far better things to do with our time and money — projects which will bring a business return on our investment," she added. "This will bring nothing but aggravation and expense."

Having to change databases "would be unacceptable to most

## Status Report

### ORACLE

Its tender offer for PeopleSoft's stock has been extended to July 18. As of July 3, about 11% of PeopleSoft's 316.6 million shares had been tendered to Oracle.

### PEOPLESOFT

The Justice Department today is expected to announce whether it is satisfied that there are no antitrust concerns regarding the company's planned merger with J.D. Edwards.

customers," said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif. "No one should be forced into anything, and I doubt Oracle would be foolish enough to try." ▀

## ELLISON'S VIEW

Oracle's CEO says he'll continue his efforts to buy PeopleSoft into next year if need be:

QuickLink 39770  
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## IBM Expands Linux Support in WebSphere

Company uses scalability bait to lure Sun defectors

BY CAROL SLIWA

IBM announced last week that its WebSphere Application Server for the first time will run on Linux on its pSeries and iSeries hardware with its Power4 microprocessor.

WebSphere already ran on IBM's Linux-based xSeries servers with Intel Corp. processors at the low end and on its zSeries mainframe at the high end. Now it will also be supported on Linux-based

midrange servers that traditionally have run the Unix operating system, said Bob Sutor, director of WebSphere infrastructure software at IBM.

"IBM continues its commitment to Linux on our strategic hardware," he said, "and we're continuing to put our commitment on our strategic software as well."

Sutor noted that Microsoft Corp.'s Windows servers run only on Intel processors and added that Sun Microsystems Inc. "has relegated Linux to the lowest end," supporting the open-source Unix derivative on Intel-based servers rather

than on its Sparc processors.

"In the Sun Sparc environment, you can only go so far up with Linux before Sun shifts you over to Solaris," said Dwight Davis, an analyst at Summit Strategies Inc. in Boston. "So this is in large part an attack on Sun, trying to draw people from the Sun platform to the IBM platform by offering them a more scalable growth path with Linux as the foundation."

Davis said most users will base their decisions on the whole IBM offering and an assessment of WebSphere. He said developers don't write to Linux directly, but rather to the J2EE platform, which, in IBM's case, is WebSphere.

"Obviously, people do care about the underlying hardware and the performance profile of the microprocessors," Davis said. "But I don't think many people are making decisions based solely on whether it's a Sparc chip, an Itanium chip, a Power chip. They're really looking at the entire package." ▀

NEW PRODUCTS		
WebSphere 5.02 for Linux/Power4-based pSeries and iSeries servers		
EDITION	PRICE	AVAILABILITY
WebSphere Application Server	\$10,000 per processor	Tomorrow
WebSphere Application Server Deployment	\$15,000 per processor	Tomorrow
WebSphere Application Server Enterprise Edition	\$30,000 per processor	July 25

SOURCE: IBM



# IBM Takes Aim at Automating Privacy Enforcement

## New language goes beyond compliance

BY JAIKUMAR VIJAYAN

A new programming language announced by IBM last week promises to help companies automate the enforcement of corporate privacy policies.

IBM's XML-based Enterprise Privacy Authorization Language (EPAL) can be used to build privacy-related rules and conditions, said Steve Adler, an IBM marketing manager. For instance, privacy policies could be written and attached to each record in a customer database. The policies then travel wherever the data goes and can be used to control the manner in which the data is accessed and used.

EPAL builds on the World Wide Web Consortium's Platform for Privacy Preferences Protocol (P3P), Adler said. P3P allows privacy preferences that are expressed in plain text to be turned into a digital or machine-readable code. It's used widely in browsers to accept or block a Web site's request for information based on a user's privacy preferences.

### P3P Comparison

But P3P doesn't allow developers to set conditions or give them a way to express negative rules — telling what a user can't do, for instance, Adler said. In contrast, "EPAL provides this positive and negative language that allows you to articulate what people are allowed to do or not allowed to do with data," he said.

"It's much more robust than P3P because it gives you a way to prevent data from being used in a [noncompliant] manner," said Larry Ponemon, director of the Ponemon Institute, a privacy think tank based in Tucson, Ariz.

"EPAL allows companies to use language that not only can describe an activity but also help enforce that activity," said Scott Shipman, privacy counsel at eBay Inc. "To date, no language has supported that second component."

eBay is a member of IBM's Privacy Management Advisory Council, which has evaluated the new language. The 25-member group also includes companies such as Marriott International Inc. and Fidelity Investments.

It's too early to say whether companies will need to make changes in their existing applications to take advantage of an EPAL environment, Shipman said. That will become clearer only as more tools become available for EPAL, he noted.

IBM's own approach has been to use what it calls "monitors" for linking new and ex-

isting applications to its Tivoli privacy management software. The approach allows developers to build privacy rules and audit reporting into applications without having to hard-code changes.

EPAL will allow companies to set and enforce far more specific rules related to the manner in which data is accessed and shared, said Fred Cohen, an analyst at Burton Group in Midvale, Utah.

The downside is that the more rules a company builds around its data with EPAL, the more complex the environment is likely to get, he added.

"It's one thing to have a system with five or six rules. But

to express something like HIPAA compliance may take thousands of rules," Cohen said, referring to the Health

### NEW PRODUCTS

#### IBM's Privacy Management Tools

- Reference Monitor for Tivoli Privacy Manager
- Declarative Privacy Monitoring for Tivoli Privacy Manager

The monitors link new and existing applications to privacy management software, eliminating the need to hard-code privacy functions into each application.

Insurance Portability and Accountability Act. "There are all sorts of things that could go wrong."

IBM's EPAL announcement builds on the company's emerging privacy management initiative. Since last fall, IBM has been selling a P3P-based technology called Tivoli Privacy Manager that's aimed at helping companies comply with privacy rules. The technology allows companies to take a written privacy policy and convert it into digital form, deploy the policy to specific IT systems and applications, and then monitor access to data in accordance with the policy. EPAL is the language through which automatic enforcement can take place. ▀

## EMC to Buy Legato as Part Of Storage Software Push

### Its latest acquisition continues plan to diversify revenue

BY LUCAS MEARIAN

EMC Corp. last week announced a planned acquisition of storage software vendor Legato Systems Inc. that's intended to boost its presence in the data backup market and help it offer an integrated set of tools for managing the entire life cycle of information.

EMC CEO Joe Tucci said the addition of Mountain

View, Calif.-based Legato through a stock-swap deal valued at \$1.3 billion will push EMC closer to his goal of getting 30% of its revenue from software sales. Storage management software currently accounts for 23% of EMC's business, which is still dominated by its disk arrays.

But EMC will have to reassure Legato users like David Scott, a systems administrator at Butler Machinery Co. in Fargo, N.D. Scott uses three of Legato's backup products and said he's concerned that support for those applications may diminish after the buyout.

"I'm always worried about support," Scott said. "When you do have [product] issues, you want to be up and running as quick as possible."

Jamie Gruener, an analyst at The Yankee Group in Boston, said the planned acquisition will also put Legato at risk of losing its hardware neutrality. But, he added, EMC users stand to benefit from having a broader suite of storage management software sold and supported by the company.

That may not be enough to convince Visa International

Inc. to adopt EMC's backup software, even though the Foster City, Calif.-based credit card company has many EMC disk arrays on its 150TB storage-area network.

Scott Thompson, executive vice president of Visa's technology group, said he isn't likely to move away from Veritas Software Corp.'s NetBackup tool in the foreseeable future because he trusts the market-leading technology.

The Legato deal is due to be completed in the fourth quarter.

Tucci said Legato will become a division of Hopkinton, Mass.-based EMC and will continue to be led by David Wright, Legato's chairman and CEO. However, its developers will move to EMC's open-software development division.

Legato shares many customers and channel partners with EMC, Wright said. "We suffer from one thing, and that's lack of resources," he said, adding that Legato hasn't been able to push sales to a higher level on its own. The company has been in the red for 14 straight quarters, and it lost \$2.6 million on revenue of \$74 million in this year's first quarter.

The Legato deal was announced just one week after EMC said it had bought Houston-based BMC Software Inc.'s discontinued Patrol Storage Manager technology. Legato will become the 10th storage software vendor that EMC has acquired outright since 2000 as part of its strategy to reduce its reliance on hardware sales.

Tucci said he would outline plans to integrate EMC's own backup and recovery software, EMC Data Manager (EDM),

with Legato's flagship NetWorker product at a briefing scheduled for Aug. 6 in New York. Current EDM users will receive a free upgrade to the integrated product, he said.

EMC held 2% of the market for backup and recovery software last year, while Legato had an 8.1% share, according to Gartner Inc. in Stamford, Conn. Veritas was by far the top vendor, with a 47% market share, followed by IBM's Tivoli Software unit at 16.6%.

Legato will add about 1,500 employees to EMC's workforce of 17,200. Tucci said there would be some consolidation moves, but he added that the deal won't be "made or broken on the cost side." ▀

### Recent Acquisitions

**SEPTEMBER 2002:** EMC acquires **Prisa Networks Inc.**, a San Diego-based vendor of software for managing small and midsize storage-area networks.

**APRIL 2003:** The company buys **Astrum Software Corp.**, a Boston-based developer of storage resource management software for midrange applications.

**JULY 2003:** EMC purchases the rights to **BMC's Patrol Storage Manager** technology, which monitors and reports on usage of storage systems.

### SUN'S SAN PLAN

Sun Microsystems last week announced a strategy for managing multivendor SANs but was short on details:

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## BRIEFS

## Microsoft Revamps Stock Awards Plan

Microsoft Corp. said "a significant portion" of the stock-based compensation awarded to more than 600 of its top managers will now be based on improvements in customer-satisfaction rates as well as growth of the company's user base. The new approach is part of a plan under which Microsoft will give employees actual shares of its stock instead of stock options.

## Patches Issued for New Windows Hole

In other Microsoft news, the company issued patches for a security hole that affects all supported versions of Windows and could be used by attackers to run malicious code on unprotected systems. The problem involves a buffer-overflow vulnerability in an HTML converter component built into Windows. Microsoft gave the flaw a "critical" severity rating on all releases except for Windows Server 2003.

## Dell Offers PC Security Service

Dell Computer Corp. announced an optional service under which it will implement security benchmarks developed by the Bethesda, Md.-based Center for Internet Security on the PCs it sells. Dell will activate more than 50 security settings in Windows 2000 for users who sign up. A similar offering will be added for Windows XP later this year, the company said.

## Short Takes

**ORACLE CORP.** said it plans to more than double the number of software developers and customer service workers it has in India, to 6,000-plus employees. . . . **NEW YORK-BASED INFORMATION BUILDERS INC.** released a mainframe Linux version of its WebFocus business-intelligence software.

MARK HALL ■ ON THE MARK

## Open-Source Spells Doom for Oracle, DB2 . . .

. . . Sybase and other general-purpose databases, predicts Tim O'Reilly. "MySQL might do to databases what Apache did for Web serving," says the president of technical book publisher and conference organizer O'Reilly & Associates Inc. in Sebastopol, Calif. Apache, he claims, has forced Microsoft Corp. to make its **IIS Web server software "effectively free in bundles."** David Axmark, co-founder and "open sorcerer" at Uppsala, Sweden-based MySQL AB, the developers of the open-source database, cautions that **you won't see Larry Ellison approving**

**free deals for Oracle9i** in the near future, if ever. Still, he says, "MySQL has already forced prices down in databases." And the price pressure will pick up steam with the release of MySQL Enterprise in two years. ■ MySQL gets another small boost next month when Pogo Linux Inc., a supplier of preconfigured Linux servers and workstations, ships its first database appliance, the DataWare 2600, at Linux-World in San Francisco.

The Redmond, Wash.-based company is **MySQL's first hardware partner**, and it's just a start-up. Still, the relentless open-source drumbeat pounding in the heads of operating system vendors is beginning to be heard by the database giants, too. ■ One of the more intriguing new products you'll encounter this summer is from Procom Technology Inc. in Irvine, Calif. William Long, vice president of product planning and development, assures

everyone that the product, called Taurus, is neither a Ford nor an astrological sign, but rather a "bridge product" for wireless networks and network-attached storage. You probably didn't even know that bridge needed crossing, but the Taurus, which is being unveiled today, serves as both a wireless access point and a data storage appliance. The Linux-based device offers a 600-ft. line-of-sight access

range from clients and has a simple LCD display for set up and troubleshooting. Long claims that the small device (about the size of the latest Harry Potter novel) will start cropping up in public wireless hot spots because it's easy to install and inexpensive. And since it has up to 250GB of local storage, it lets users publish gobs of information to the Web. A 40GB unit starts at \$1,699.

■ **Still have some pesky Macintoshes in your company?** Well, starting tomorrow,

you can back them up with Retrospect 5.1 for the Macintosh from Dantz Development Corp. in Orinda, Calif. The upgrade adds Red Hat Linux client support (it already supported Windows clients) and a nifty disaster recovery CD that lets you boot dead-in-the-water Macs and recover your data using a single disc. ■ **Web services can clog your network** with extra overhead, so you need to test those applications stringently, advises CIO Michael Stoeckert of EPL Inc., a Birmingham, Ala.-based IT services firm for banks and credit unions. He says EPL has a new application for processing check orders its customers place with check printers, a service it couldn't offer until the advent of XML, SOAP and other Web services protocols. Stoeckert uses LoadRunner, a network test tool from Mercury Interactive Corp. in Sunnyvale, Calif. He also runs Mercury's SiteScope to track the services-based application as its packets trek to and fro because "latency can be a problem" when you are dealing with machines outside your own data center. Stoeckert isn't overly concerned about security for the application because "it was not architected as a Web service for a B2C model. We're in the B2B world." ■ **A much safer place.** ■ A B2B operation of a different sort is being run by Geekcorps, a North Adams, Mass.-based volunteer organization that seeks technology experts who are willing to help businesses in developing countries design, deploy and run information technologies. So far, more than 1,500 volunteers have contributed their know-how in places like Bulgaria, Ghana, Jordan and Mongolia. The usual stint takes three to four months. Geekcorps staffers say many IT pros sign on while between jobs. So, **while you're waiting for the recession to end and work to begin**, you can give a little back to the planet. ▀

## Cool Security

**Artisoft Ltd.** this week will release its **FileAssurity OpenPGP**. The London-based company says the \$39 package encrypts and decrypts PGP-protected files and generates, imports and exports PGP keys. **FileAssurity OpenPGP** works with any other **OpenPGP-compliant software** and uses the **U.S. government-approved FIPS 197 encryption algorithm** at its strongest strength, 256 bit.

## IBM Shifts Life-Cycle Management Focus

BY JAIKUMAR VIJAYAN

IBM will launch by year's end bundled Express versions of its product life-cycle management (PLM) software as part of a recently announced campaign targeting small and mid-size manufacturing companies.

Under the first phase of the initiative, IBM will attempt to sell PLM software that's tuned for deployment in companies that manufacture industrial machinery and components, mobile equipment and consumer goods. PLM tools are

designed to improve manufacturing efficiency, product quality and time to market.

IBM's effort addresses an important need, according to Ed Miller, president of CIM-data Inc., a consultancy in Ann Arbor, Mich.

"If you look at the PLM market, the majority of investments has traditionally come from major companies," Miller said. "But what we are finding over the last couple of years is an increasing interest from small to midsize organiza-

tions" that want to take advantage of the potential benefits of PLM.

Jomico Metal Fabricators, a sheet metal shop in St. Louis, is considering implementing a document management capability for its CATIA engineering software from IBM. The company is a supplier to the likes of Lockheed Martin Corp. and The Boeing Co. and is under pressure to streamline the process for managing its engineering documents.

"A lot of our customers are

ISO-certified, and they like to see their vendors in compliance as well," said Dave Henson, CAD/CAM systems manager at Jomico. But until now, Jomico couldn't afford to implement a PLM capability. The hope is that IBM's PLM Express initiative will change that, Henson said.

The idea is to take some of the complexity and cost out of PLM deployments, especially for smaller companies where both issues are critical to technology adoption, said Debbie Walker, a product manager with IBM's PLM group. ▀





# Has your Web Hosting provider left you dangling?

**Put your business on solid ground.** While some Web Hosting providers are abandoning their hosting operations or struggling with questionable finances, AT&T continues to grow and integrate our hosting services into our networking architecture to ensure predictable performance of your applications environment. You can count on AT&T's best-in-class hosting services to deliver:

- Performance advantages of a 24X365 predictive management platform.
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# Unisys Tunes JVM for ES7000

Provides Unix alternative by enabling Java applications to run on Datacenter

BY CAROL SLIWA

**U**NISYS CORP. today is making available a Java virtual machine (JVM) that it has specially tuned for its 32-processor ES7000 system running Microsoft Corp.'s high-end Windows Datacenter server operating system.

The Blue Bell, Pa.-based company claims that its new JVM — which will enable Java applications to run on Windows on the ES7000's Intel-based processors — will provide an alternative to Unix for independent software vendors and enterprise customers who need high-end, enterprise-class performance with Java.

But it's unclear how much appeal the JVM will hold for existing ES7000 customers,

many of whom are devoted Microsoft users.

"We are currently committed to Microsoft development, so the use of Java isn't currently entertained here," said Morris Koenke, a database services manager at Addison, Texas-based Mary Kay Inc., which has several ES7000s.

Bob Crownhart, an IT director at Premera Blue Cross in Mountlake Terrace, Wash., said the health insurer doesn't run Java applications on its ES7000 or have any plans to do so. But he added that he has no problem with Unisys developing a JVM for the ES7000, as long as it's an optional element.

Crownhart said he doesn't like to see Unisys depart from Microsoft's direction and

would have concerns if Unisys shipped the JVM with the ES7000 and it affected the service packs or maintenance releases that Unisys ships.

"In those service packs," we'd have to look for any patches or hot fixes to that specialized [JVM], because you know they're not going to code it right the first time," Crownhart said. A "customized piece," such as the Unisys JVM, might "thwart uniformity," he added.

## Gauging User Interest

Walt Lapinsky, director of strategic software at Unisys, said the new JVM can be downloaded at no charge. He said the company will consider shipping it with the ES7000 if interest is high.

The Unisys JVM has been available in beta format for roughly a year, and a few customers and independent soft-

## NEW PRODUCT

### Java on Windows

The new JVM is designed for the following

Windows Server 2003 Datacenter and Enterprise editions

Windows 2000 Datacenter Server and Advanced Server

ware vendors have used it, Lapinsky said. Unisys declined to provide the names of any beta testers.

Lapinsky said customers that are trying to consolidate servers for ease of management are unable to do so with their Java applications in the Windows Datacenter environment, so Unisys saw a need to provide a way to do that.

John Meyer, an analyst at Cambridge, Mass.-based Forrester Research Inc., said it made sense for Unisys to be-

gin supporting Java as proactively as it does Microsoft, since Java on Unix has been the more credible platform for large-scale, back-office applications in the past two years.

Meyer said he thinks the trend will continue toward Intel-based systems hosting what Unix systems have traditionally been known for. Windows can be a viable operating system for deploying applications that need significant scalability, and users can do it at a lower cost than with Unix systems, he said.

But Meyer said Unisys will need to get application server vendors to support its JVM in order to have a viable offering. "Unless the other vendors support it, the uptake in the use of it for J2EE on the Unisys platform will probably be much less than what it has the potential for being," he said.

So far, there has been no indication of whether IBM and BEA Systems Inc., the leading Java application server vendors, will provide support. ▀

# Group Led by IBM, Microsoft Releases User Identity Spec

Must converge with user-backed Liberty Alliance's work

BY CAROL SLIWA AND TOMMY PETERSON

The fifth of seven parts of a Web services security plan drawn up 15 months ago by IBM and Microsoft Corp. emerged last week. But it will have to be reconciled with work already done by the user-backed Liberty Alliance Project.

The newest specification, called Web Services Federation (WS-Federation), describes how to exchange user identity information among systems that rely on different security models. VeriSign Inc., BEA Systems Inc. and RSA Security Inc. helped IBM and Microsoft draft the specification, which will now be sub-

ject to a public review period of an undetermined duration.

Even though the 170-member-plus Liberty Alliance has focused on federated identity, the smaller group led by IBM and Microsoft said its efforts won't stand in conflict. The Liberty Alliance's membership extends beyond technology vendors to companies such as American Express Co., Bank of America Corp., General Motors Corp. and UAL Corp.

"We're anxious to work

with them to find a way for them to take advantage of this key infrastructure," said Karla Norsworthy, director of dynamic e-business technologies at IBM.

Steven VanRoekel, director of Web services marketing at Microsoft, said the technology introduced in WS-Federation is "very complementary" to the Liberty Alliance's work. He said Liberty targeted the specific scenario of consumers opting to allow their informa-

tion to be shared among corporations or service providers, whereas WS-Federation addresses the broader issue of federating multiple identity systems to one another.

"Right now, WS specs are underspecified, and Liberty specs are overspecified. It would obviously help if people would get in a room and talk about it, but I don't know how soon that will happen," said Bob Blakley, chief scientist for security and privacy at IBM's Tivoli Software division. He also worked on the Security Assertion Markup Language standard that is key to the Liberty Alliance's work.

For its part, the Liberty Alliance welcomed the focus on federated identity and pledged to look at the WS-Federation specification once it goes to an open-standards body.

"Convergence of the two standards would benefit everyone, rather than having a holy war," said Slava Kavsan, vice president of engineering at RSA Security, which is a member of Liberty Alliance

and has also worked with the IBM/Microsoft group.

Eric Norlin, vice president of strategic marketing at Ping Identity Corp., a Liberty Alliance member in Denver, noted that convergence wouldn't be unprecedented. He said the Liberty Alliance moved quickly to adopt relevant parts of the WS-Security specification once IBM, Microsoft and VeriSign turned it over to the Organization for the Advancement of Structured Information Standards (OASIS).

The authors of WS-Federation pledged to submit the specification to a standards body. No decision has been made about which one, but Norsworthy said OASIS is a "very likely candidate."

WS-Security, the first of the road map specifications to be published, went to OASIS in September. WS-Policy, WS-Trust and WS-SecureConversation, which were published in December, are still in the review stage and have yet to be submitted to a standards body. ▀

## What WS-Federation Includes

**Web Services Federation Language:** Defines how different security systems broker identities, attributes and authentication among Web services.

**Passive Requestor Profile:** Describes how federation mechanisms can be used by passive clients, such as Web browsers or Web-enabled cell phones, to provide identity services

**Active Requestor Profile:** Defines how federation mechanisms can be used by active clients, such as Web services and smart clients.



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# Software Market Hit By Purchasing Delays

While vendors' financials fall short, users benefit from tough sales climate

BY STACY COWLEY

**C**ITING PURCHASING delays stemming from the troubled economy, quite a few

software vendors are already warning that the numbers will be grim when they release their financial results later this month for the quarter that ended June 30.

While PeopleSoft Inc. in Pleasanton, Calif., unexpectedly lived up to earlier forecasts despite pressure from Oracle Corp.'s hostile takeover bid, fellow enterprise applications maker Siebel Systems Inc. in San Mateo, Calif., warned for the second quarter in a row that it will miss its earlier guidance.

Houston-based systems management software developer BMC Software Inc. also fell short of expectations for its most recent quarter, as did all four of the major pure-play enterprise application integration vendors: Tibco Software Inc., WebMethods Inc., See-Beyond Technology Corp. and Vitria Technology Inc.

## Some Goods News

Even though most of this quarter's earnings warnings came from software companies, analysts said that the problems are concentrated in certain niches and that the software sector overall remains healthy.

"I'm more looking at the glass as half-full. In general, I'm seeing a lot of buying," said Joshua Greenbaum, founder of Enterprise Applications Consulting Inc. in Daly City, Calif.

In the turbulent enterprise applications market, top vendors SAP AG, Oracle, PeopleSoft and Denver-based J.D. Edwards & Co. are all perform-

ing well, said Greenbaum, who added that he sees Siebel's string of rough quarters as a company-specific issue.

"Siebel wants to blame the economy for the trouble, but I really think fundamentally they have some serious holes in their product strategy that are really coming home to roost," he said.

While other developers offer clients full portfolios of applications to handle a variety of corporate operations, Siebel has remained focused almost exclusively on CRM offerings. And that focus will continue to cost the company sales as customers increasingly seek integrated suites, he predicted.

Gartner Inc. analyst Tom Topolinski contends that Siebel's future isn't quite that bleak. All of the CRM vendors are adjusting to a market that will never again grow at the rate it did in the late 1990s, and none of them have yet perfected their formulas for generating sales in the new environment, said Topolinski, research director of Stamford, Conn.-based Gartner's worldwide software applications group.

The rate at which sales are declining has slowed, but CRM vendors won't hit bottom and begin to turn the corner toward growth until the third or fourth quarter of this year, he predicted. Gartner estimates that new worldwide CRM license sales declined 25% in 2002, to \$2.8 billion, and will fall another 16% in

## IT SPENDING

# House Cuts Pentagon's IT Budget

Lawmakers cite lack of oversight

BY DAN VERTON

The U.S. House of Representatives last week passed a defense spending bill that, if approved by the Senate, would significantly reduce investment in technology that's key to the U.S. Department of Defense's so-called transformation effort.

The House voted 399-19 to cut \$320 million in IT spending across the operations and maintenance accounts of all four military services. The Navy and Air Force each lost \$100 million in planned spending, while Army and departmentwide IT programs were each reduced by \$60 million. The Pentagon had requested \$28 billion in departmentwide spending on IT programs.

Officials from the Army,

Navy and Air Force declined to comment last week on what one official from the Army CIO's office called pending legislation. The House and Senate must still hash out a compromise on the measure in a joint session.

However, in a report on the bill published July 2, the House Appropriations Committee said it was concerned about the continued growth of IT programs, especially operations and maintenance accounts. In addition, lawmakers said they have reservations about a "lack of oversight and

**[IT spending is] the last thing that should be cut, not the first.**

**JAMES ADAMS, CEO, THE ASHLAND INSTITUTE FOR STRATEGIC STUDIES**

management attention" given to many Pentagon IT programs.

"Over the last two fiscal years, the information technology budget has increased over 15% in the operation and maintenance accounts," the report said. "While the Committee fully supports the transformational efforts of the department, the Committee continues to believe that the Department of Defense must be more effective in eliminating unneeded legacy systems and consolidating the large number of disparate networks that are currently being maintained."

A senior staff member on Capitol Hill who spoke on condition of anonymity said the basic reason for the reductions is the Pentagon's "lack of a coherent strategy" when it comes to IT investments.

"We're not seeing a whole

several vendors, Henry settled on PeopleSoft's technology as the best match for Regal Cinema's needs. But all of the vendors he talked with offered more flexibility than was common two years ago, he said.

"The software vendors are very open to negotiating, as far as pricing and contract terms," he said. "That tells you something about the market." ▀

Cowley is a reporter for the IDG News Service.

## Revenue Roll Call

VENDOR	JUNE '02 QUARTER REV.	JUNE '03 QUARTER REV.
BMC Software	\$305.2M	\$305.2M
Computer Associates	765M	765M
Microsoft	\$725M	\$725M
Oracle	\$725M	\$725M
PeopleSoft	\$482.2M	\$482.2M
SAP	\$207M	\$207M
Siebel	\$405M	\$405M

NOTES: \*Preliminary estimate from company management

\*\*Consensus estimate of analysts polled by Thomson Financial/First Call

†Quarter ended May 31

lot of effective program management either," said the staffer. "Until they get that right, how can they expect us to keep funding these programs at the levels they are requesting?"

## A 'Warning Shot'

James Adams, founder and CEO of The Ashland Institute for Strategic Studies in Ashland, Ore., and a former IT adviser for the National Security Agency, said the cuts aren't so deep as to signal a major technology crisis for the Defense Department.

"Usually, these sums of money are warning shots," said Adams. "Still, it doesn't seem very rational to me. The requirement to make the services [fight more effectively as a team] is more investment in IT infrastructure, not less. You can't effectively [integrate military services] unless you have a solid IT infrastructure. It's the last thing that should be cut, not the first." ▀



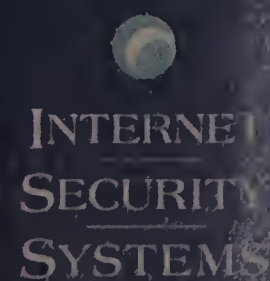


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## BRIEFS

## HP Agrees to Buy Security Software

Hewlett-Packard Co. said it has agreed to buy Web-based user identity management software from Baltimore Technologies PLC in Hemel Hempstead, England. HP will pay about \$13.6 million in cash for the SelectAccess technology, according to Baltimore, which is looking to sell off all its operations. The deal between the two companies is expected to be completed next month.

## Symbol's Chairman Steps Down . . .

Symbol Technologies Inc. said Jerome Swartz has resigned as chairman and chief scientist of the Holtsville, N.Y.-based company, which is being investigated for accounting violations by the U.S. Securities and Exchange Commission and the U.S. attorney's office in New York. CEO Richard Bravman will serve as chairman until the maker of wireless devices and bar code scanners holds its annual shareholders' meeting in October.

## . . . While Two Top Execs Exit Proxim

Proxim Corp., a Sunnyvale, Calif.-based maker of wireless LAN equipment, announced that Chairman Jonathan Zakin and Vice Chairman David King will both resign from its board and give up their positions as corporate officers. Proxim also said that it expects to report a loss of about \$50 million on revenue of approximately \$35 million for the second quarter.

## Short Takes

Thomas Lesica was named group vice president of global IT and business operations at AVAYA INC. in Basking Ridge, N.J. . . . INTEL CORP. said it has acquired WEST BAY SEMICONDUCTOR INC., a Vancouver, British Columbia-based maker of optical networking chips.

## CA Event to Focus on Security, On-Demand Technologies

Software vendor expected to announce release of security portal at conference

BY MARC L. SONGINI

As it tries to cope with the continuing lull in IT spending, Computer Associates International Inc. is expected to make big pushes on security and on-demand computing technology at its annual user conference this week.

Among the announcements expected at CA World 2003 in Las Vegas is the release of the company's eTrust Security Command Center software, a portal-based product that will let IT staffers centrally manage security applications from different vendors across a variety of systems. CA detailed

its plans for the portal technology last September [QuickLink 32832].

CA officials declined to comment about other product developments that will be discussed this week. But

based on the agenda for CA World, the vendor will also promote its efforts around Linux adoption and further detail its strategies for supporting on-demand computing and Web services technology.

For example, CA likely will announce new automated provisioning capabilities designed to let IT managers more fully exploit the network and server

assets they have in their data centers, sources said.

The company made its initial foray into on-demand computing in late April, when it unveiled a set of six new or upgraded software products that can be used to dynamically allocate computing resources to specific applications as business demands change.

Rich Ptak, an analyst at Ptak & Associates Inc. in Amherst, N.H., said on-demand technology should help corporate users get improved payback from their existing IT infrastructures. CA's offering is focused on companies' need to rapidly install new applications, he added.

Electronic Theatre Controls Inc., a Middleton, Wis.-based maker of theatrical lighting

equipment, uses CA's Unicenter systems management software. Mike Eckert, an enterprise automation specialist at the company, said his CA World plans include looking at CA's eTrust Intrusion Detection software as a tool that could "help filter what Web sites users can go see."

In addition, Eckert said he's interested in examining products that can help beef up Electronic Theatre Controls' virus-protection capabilities and investigating how Unicenter integrates with the overall eTrust product line.

Mike Stevenson, enterprise administrator at the Peel Regional Police data center in Brampton, Ontario, also plans to attend CA World. But Stevenson said that he's less interested in learning about specific product capabilities than he is in hearing about CA's overall strategic direction. The police agency is also a Unicenter user. ■

## CA WORLD

Continued from page 1

## Sarbanes

AMR Research Inc. in Boston. From an IT perspective, Section 409 "will cause the most heartburn" of all the Sarbanes-Oxley mandates, he said.

Jim Honerkamp, CIO at Clopay Corp., said officials at the Mason, Ohio-based building products maker "do anticipate a considerable amount of work" being necessary in IT because of Sarbanes-Oxley requirements like the ones spelled out in Section 409.

Honerkamp has already begun working with business executives and Clopay's auditors to define internal control processes for complying with facets of the

new law, including Section 409. But he acknowledged that the company's IT department is "just starting" to focus on the software development, data security and consulting investments that will be needed.

"Very little work is being

done on Section 409," said Robert Handler, an analyst at Meta Group Inc. in Stamford, Conn. "Most of the work that is being done has been on Section 404."

That's the case at Globix Corp. Jameson Holcombe, senior vice president of operations at Globix, said the New York-based provider of managed IT hosting services currently is focusing on documenting its financial and accounting processes to meet the Section 404 requirements. Once that process is completed, which Holcombe expects

to happen by mid-September, Globix officials plan to begin addressing the company's automation needs, including ones tied to Section 409.

Sarbanes-Oxley compliance efforts are complicated by the fact that much of the law's language "is so ambiguous," Holcombe said. "For example, what is 'material'?" He added that he hopes the SEC will publish specific guidelines for complying with

Section 409 and other parts of Sarbanes-Oxley by September.

An example of a material event that may fall under the requirements of Section 409 is the loss of a major sales contract to a competitor, Handler said. Potential sales are often taken into account when companies make public revenue forecasts, he noted.

Cost overruns on IT projects and other major capital expenditures could also qualify as material events that need to be reported to interested parties within 48 hours.

## Batch of Problems

The shift to a near-real-time computing environment could be particularly onerous for IT departments at big companies that rely heavily on batch processing, such as banks and telecommunications carriers.

Ulysses Knotts, CEO of CommerceQuest Inc., a Tampa, Fla.-based vendor of process-modeling software for Sarbanes-Oxley compliance, predicted that most big users will build hybrid batch and real-time reporting systems. "Show me a company worth more

## Very little work is being done on Section 409.

ROBERT HANDLER, ANALYST, META GROUP INC.

than \$10 billion that's going to eliminate batch," he said. "They just can't do it."

Data marts that extract information from transaction systems might provide some relief in reporting on material events, Knotts said. But most existing data marts have been built to meet planning or marketing requirements that have turnaround times longer than 48 hours, he added.

Handler said he's worried that many companies will procrastinate about taking steps to meet the Section 409 requirements. He drew an analogy between Sarbanes-Oxley and how businesses reacted to the Y2k problem. "We knew about it, then hemmed and hawed, and then reacted to it again with two years to go and scrambled," Handler said. ■

## MORE ONLINE

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# Hotel Goes Wireless With Voice/Data IP Net

Uses new SIP standard to offer voice and text messaging via wireless phones

BY MATT HAMBLIN

**H**OTEL Commonwealth in Boston opened last month with an IP network infrastructure that supports voice and text messaging to in-hotel wireless phones and other interactive applications for guests, all relying on the Session Initiation Protocol (SIP).

A few other U.S. hotels, including the Sheraton Sonoma County in Petaluma, Calif., have deployed combined voice and data IP networks. But Hotel Commonwealth's use of the emerging SIP interoperability standard appears to be a first in the hospitality industry, said Brian Riggs, an analyst at Sterling, Va.-based

Current Analysis Inc.

Paris-based Alcatel SA last week announced that it provided the IP switches that support SIP at the heart of the hotel's network, plus its Alcatel Personal Wireless Telephony phones. Hotel Commonwealth guest rooms also have wireline IP phones that can receive text and graphical messages on 3-by-3-in. screens. Those phones are made by Woburn, Mass.-based Pingtel Corp.

Timothy Kirwan, managing director of the independently operated hotel, said the IP voice and data technology was chosen over a traditional private branch exchange (PBX).

An IP-based system that supports SIP offers more flexi-

bility for adding features or applications, and it "won't be obsolete in three to five years," Kirwan said. Cisco Systems Inc. was the other finalist for the switch deal, he added.

"We were very concerned about the intuitiveness of the technology," Kirwan said, since most hotel guests stay less than 48 hours and won't tolerate having to master complex products. But the IP devices appear to be catching on, he said, noting that he saw guests carrying Alcatel's wireless phones on the first day the hotel was open.

Riggs said the Hotel Commonwealth's network is the largest IP convergence project undertaken by a U.S.-based hotel that he's aware of.

Alcatel's commitment to SIP was an important decision that adds a layer of standard-

ization to the hotel's choice to go with IP technology, said Stewart Randall, principal consultant at Communications Design Associates Inc. in Norwood, Mass. Randall acted as the lead IT consultant on the project, starting in 1998.

SIP has yet to be formally ratified by the Internet Engineering Task Force. But the use of the technology frees Hotel Commonwealth to replace its Alcatel and Pingtel phones, if necessary, with other devices that support the

standard, Randall said. In addition, other network devices and applications, such as point-of-sale or call accounting systems, should interoperate with Alcatel's OmniPCX Enterprise IP-PBX switches.

Randall said the hotel's IT infrastructure cost more than \$1 million to set up. But despite its investments in the IP network, high-speed Internet access and other high-tech amenities, the hotel isn't tacking daily user fees onto its room rates, Kirwan said. ▀



**HOTEL COMMONWEALTH** in Boston is believed to be the first company in the hospitality industry to use the emerging SIP interoperability standard.

Continued from page 1

## Wi-Fi

Wi-Fi links — or whether they should simply provide the Internet and e-mail access capabilities for free in the hope that increased sales of food, drinks and other products will more than offset the cost of the technology.

That issue is currently being weighed by McDonald's Corp., which last week launched a Wi-Fi pilot project at 75 restaurants in the San Francisco Bay area through a deal with Austin-based Internet access provider Wayport Inc.

Mark Jamison, vice president of business strategy and development at McDonald's, said the Oak Brook, Ill.-based company will use the San Francisco trial and similar ones in Chicago and New York to evaluate potential pricing models for the service and Wi-Fi technology's ability to attract customers.

Altogether, McDonald's

plans to equip several hundred restaurants in the U.S. with Wi-Fi connections by year's end. Jamison said the fast-food chain is charging \$4.95 for two hours of Wi-Fi access at the San Francisco locations, but customers who buy a meal can use the technology for free. If a free service tests best with potential users, then that is "the path to follow," he added.

Valencia Group, a Houston-based hotel operator, decided to offer free Wi-Fi access in all public areas in the luxury-class Hotel Valencia Santana Row, which opened last month in San Jose. Matthew Nuss, Valencia's executive vice president, said company officials view the Wi-Fi capability as a must-have amenity for guests.

"Wireless, in our opinion, is the next running water," Nuss said. "It's become part of the infrastructure of a hotel." The Valencia Santana Row installed seven wireless access points and pays about \$2,000 per month for the 100MB/sec. pipe that supports the Wi-Fi

service. Nuss said the service is well worth the IT cost because it helps the hotel attract technology-savvy travelers.

Schlotzky's Inc., an Austin-based operator of deli-style restaurants, currently offers free Wi-Fi service in 15 of its 600-plus restaurants. Monica Landers, a spokeswoman for Schlotzky's, said the chain started offering Internet access capabilities a year ago as

a community service and quickly found that the technology paid off in terms of increased customer traffic.

Twelve company-owned stores in the Austin area that offer Wi-Fi service each pull in an extra 23 customers daily on average, Landers said. She added that customers spend an average of \$6 each per visit, so Schlotzky's easily gets a payback on the \$300 a month it pays to run a T1 line to a restaurant. At a meeting this week, Schlotzky's officials plan to encourage franchisees to add Wi-Fi service in their restaurants.

VIA Rail Canada Inc., which operates passenger trains throughout Canada, last week kicked off a four-month test in which it will offer Wi-Fi access on some trains between Montreal and Toronto.

Guy Faulkner, product manager for corridor services at Montreal-based VIA, said the railway won't charge for the service during the trial. But VIA will ask passengers what

they would be willing to pay for Wi-Fi access, he said.

Seattle-based Starbucks Corp. launched Wi-Fi service in its U.S. cafes last August and now offers access in about 2,000 locations. Users have to sign up for the service with Bellevue, Wash.-based T-Mobile USA Inc., whose prices start at \$19.99 per month.

Lovina McMurchy, director of Wi-Fi business and alliances at Starbucks, said the company plans to stick with that approach. But she added that Wi-Fi hot-spot deployment is "a learning experience" for businesses and said it's hard to tell how different pricing plans or free services will play out. At this point, a lot of companies are still just "dabbling" in Wi-Fi through pilot projects, McMurchy said. ▀

## Public WLAN Hot Spots Worldwide

	2002	2003*
Retail outlets	11,109	50,287
Hotels	2,274	11,687
Others	1,369	9,105
<b>TOTAL</b>	<b>14,752</b>	<b>71,079</b>

\*Projected

SOURCE: DATAQUEST INC., SAN JOSE

## ENTERPRISE WI-FI

AT&T and WorldCom both added Wi-Fi access capabilities to the VPN services they offer to corporate users:

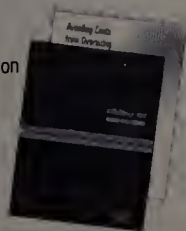
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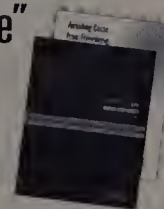
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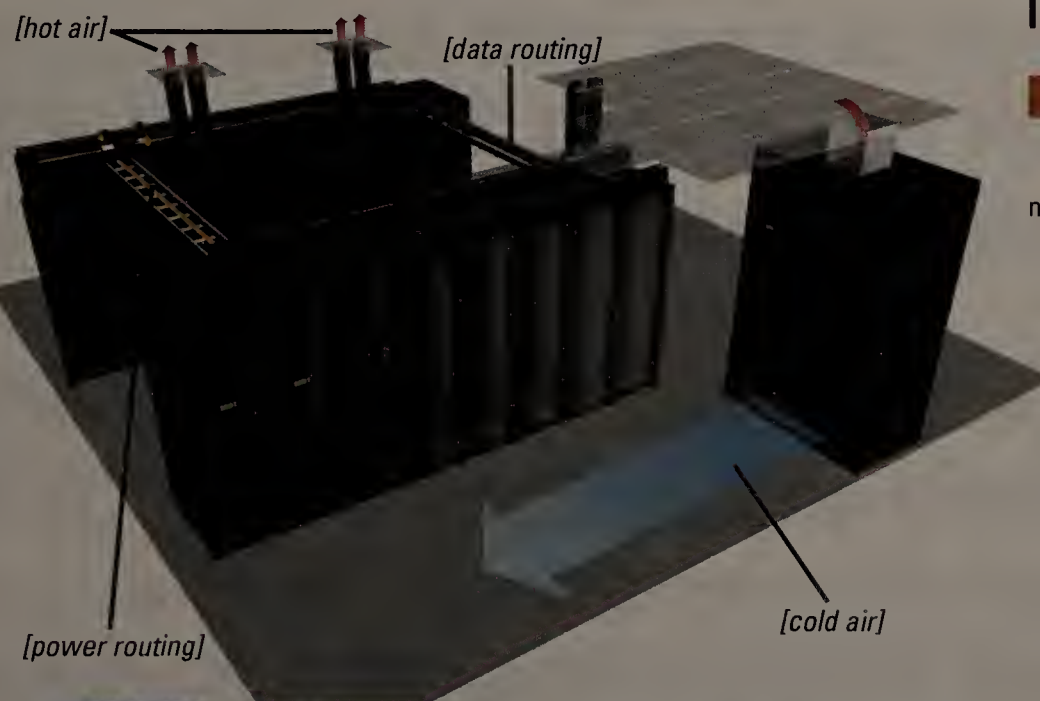
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Vice President of Engineering  
**Rich Flanders**  
Director of Engineering  
Time Warner Cable

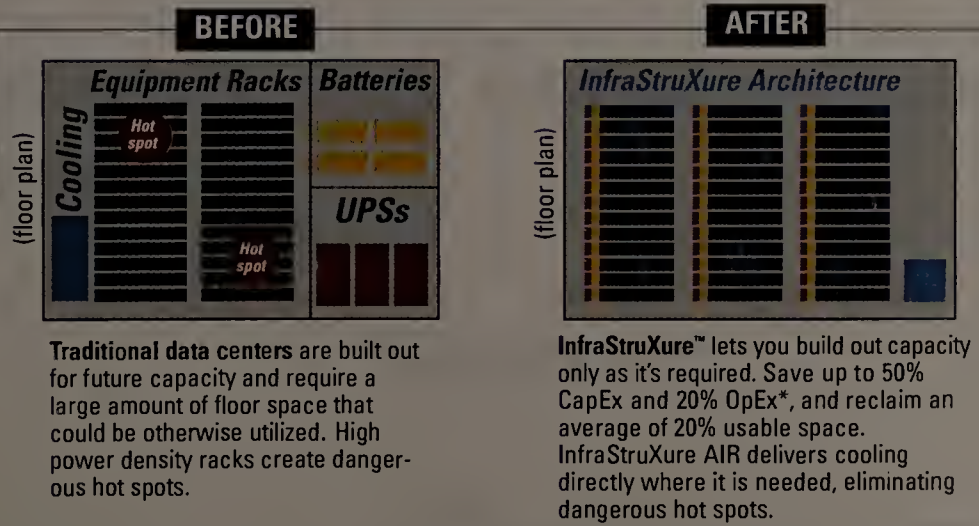
"If I had purchased the incumbent vendor's 3-phase upgrade model, I would have paid 75% more in service costs over the next four years and I would have had to utilize 50% more of my precious floor space."

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Support Services Division  
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MARYFRAN JOHNSON

# Dog Days of Unix?

**T**HE FORTUNES and misfortunes of Unix have always fascinated me, and honestly, I consider this something of a personal problem. Like voting for Democrats or trying to house-train a dachshund (both clearly wasted efforts).

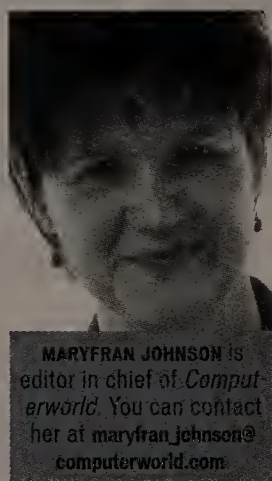
I trace my Unix affliction back more than a decade to my days as a *Computerworld* reporter, when I was covering the piteous struggles of the so-called Unix desktop wars. My side lost quite spectacularly to the Microsoft monopoly. It was a clear defeat for open systems and a decisive win for Windows, the most proprietary operating system on earth.

Fast forward to today, and Unix is once again under siege, routinely derided as "proprietary" by, of all people, the Wintel crowd. But the most surprising attack is coming from a boisterous little Unix cousin with the same digital DNA twisting around its code and a cuddly penguin for a mascot. Linux, running on Intel boxes, is swarming the enterprise at the low end, bumping off the big-dog Unix variants (Sun Solaris, HP-UX and IBM's AIX) almost as often as it routs Windows NT.

Linux is impressing IT with its compelling cost savings and solid performance, supported by a rising chorus of rabid fans among developers and all the major systems and software vendors.

So, is Unix really doomed this time? Is it too late to adopt an adorable mascot — a dachshund, perhaps? We answered that question (not the mascot part, but the doomsday scenario) on our front page last week [QuickLink a3360]. And we confirmed that Unix is far from being the guest of honor at any farewell parties.

Unix remains essential to the



MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran.johnson@computerworld.com.

most powerful applications in corporate enterprises, says our survey of 291 IT managers and users. When asked how reliant their companies are on Unix, 77% of our respondents said "extremely" or "very" reliant. More than half (56%) said Unix would indefinitely own the high end, while another 24% saw its importance declining but not disappearing.

In another two dozen interviews, corporate users told us that while they love the economics of Linux on Intel at the low end, they're acutely aware that it's still years away from the power, scalability, stability and support their data centers require. The moving-target nature of Linux distributions — that rapid evolution of the code base that open-source devotees brag about — is hardly a

selling point for high-end business applications today.

And real money is still being spent on Unix. Last year, businesses and governments worldwide spent nearly \$21 billion on Unix servers and \$13.9 billion on Windows, but only \$2.8 billion on Linux, reports IDC. Over the next five years, however, IDC analysts expect Unix to crawl along, growing less than 3%, whereas Linux will be racing its engines, growing more than 200% to an eventual \$8.8 billion market.

Listening to the Linux vendors, I have to admire their marketing spin as they denigrate Unix for its multiple versions (which they have in abundance) and make giddy predictions about "Linux everywhere" (a phrase borrowed from Bill Gates' playbook?).

In reality, the foreseeable future is a three-way race between Unix, Linux and Windows — with Linux more likely to outrun Windows at the high end than Unix. But regardless of how this race plays out, it has only benefits for IT managers. Robust competition ultimately drives prices down and choices up. Oh, and if anybody wants to try outmarketing that beguiling penguin, I've got a very winsome dachshund I'd like to get out of the house more often. ▀



PIMM FOX

# Microsoft, Lead the Spam War!

**M**IX INDEPENDENT, trusted authorities with best practices, authorize them to mediate disputes, add in a negligible dose of government interference, and what do you have?

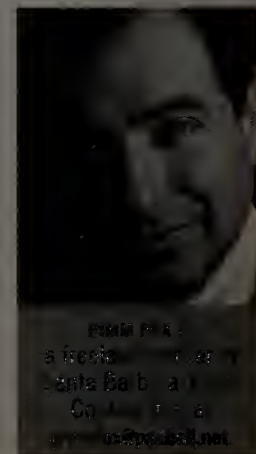
The technology industry's get-tough policy on a pernicious problem: spam.

Back in May, the Senate Committee on Commerce, Science and Transportation held hearings on spam. In written testimony, Microsoft Chairman Bill Gates didn't say much about improving government regulations, tightening existing laws or beefing up enforcement talent at the Federal Trade Commission. Nor did he explicitly support Virginia legislation (signed in April) that has made it a felony to send unsolicited bulk e-mail containing falsified routing information. Virginia's law goes further than the anti-spam statutes in 25 other states by permitting felony prosecutions and seizure of assets.

Instead, Gates — who says he hates spam — offered up a dose of research and marketing. Sure, the announcement of a 20-person Microsoft team to work on spam is good news, but it falls far short of what's needed. (Note that the company's security team didn't get very far in a year.)

The only way to grab hold of this marketing gone berserk is to also hold Internet service providers financially liable — and make the penalties for spammers onerous enough to thwart their business plans. Think millions!

Telephone companies (prodded by the 1991 Telephone Consumer Protection Act) have blocking technology to combat telemarketers. Surely, Microsoft and IBM aren't technology laggards. Gates should lead the technology charge to remove from Outlook and Exchange advertisements for bigger penises, get-rich-quick schemes and





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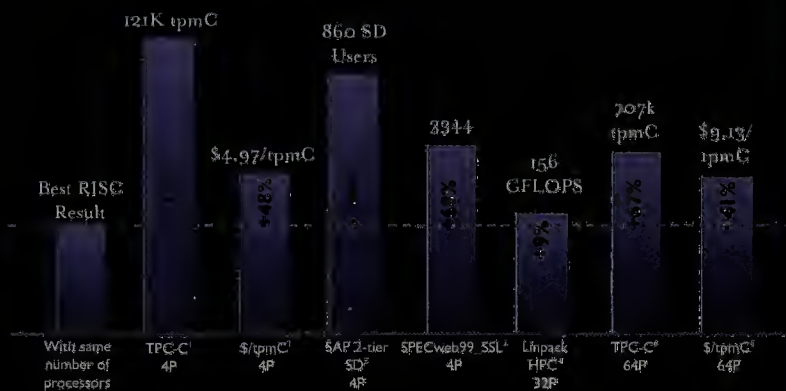
Efficient, economical and reliable. These qualities give upstart air carrier JetBlue® its distinct competitive advantage in the turbulent airline industry. Amidst competitors known for late planes, diminished service and inflated costs, JetBlue's planes fly on-time, with top-flight service, and at bargain basement passenger fares. To maintain this edge, the company builds its business systems upon an equally qualified IT architecture.

Since its start-up in 2000, JetBlue has standardized on a single computing architecture—Intel. The airline's massive data warehouse and frequent flier

program, TrueBlue, are housed on a range of 4-, 8- and 16-way Intel® Itanium® 2-based Unisys ES7000 servers on Microsoft Windows®. And JetBlue's online reservation system, which delivers 72 percent of JetBlue's revenue, is about to be moved onto Intel's new, enhanced platform, the Intel® Itanium® 2 processor 6M L3. Additionally, the airline runs its internal operations on roughly 250 Intel® Xeon™ processor-based HP servers.

As a result of this consolidation onto a single powerful platform, JetBlue hasn't just boosted computing power—it's saved an estimated 60 percent in





## INTEL® ITANIUM® 2 PROCESSOR 6M: INDUSTRY-LEADING PERFORMANCE RESULTS

- Source: [www.tpc.org](http://www.tpc.org); Intel® Itanium® 2 processor results on HP Server rx5670 using 4 Intel® Itanium® 2 processors 1.50 GHz with 6MB L3 cache, 64GB memory, Microsoft Windows® Server 2003, Enterprise Edition and Microsoft SQL Server 2000® Enterprise Edition 64-bit, \$4.97 \$/tpmC, availability date 8/1/02. Alpha results of 56.3K and \$9.44 price/tpmC on HP AlphaServer™ using 4 ES45 processors 1.25 GHz, 32GB memory, availability 09/27/02.
- Source: [www.sap.com/benchmarks](http://www.sap.com/benchmarks); Intel® Itanium® 2 processor results measured on HP Server rx5670 using 4 Intel® Itanium® 2 processors 1.50 GHz with integrated 6MB L3 cache, 24GB of memory, HP-UX® 11i, SAP rev 4.6 C, Oracle® 9i. Best RISC result of 420 from [www.sap.com/benchmarks](http://www.sap.com/benchmarks) on AlphaServer® ES45 1000 MHz.
- Source: [www.spec.org](http://www.spec.org); Intel® Itanium® 2 processors result on HP Server rx5670 using 4 Intel® Itanium® 2 processors 1.50 GHz with 6MB L3 cache, 24GB memory, HP-UX® Power-4+ result of 1988 on pSeries® 630 Model 6GS using 4 Power 4+ processors 1.45 GHz with 8GB cache (off chip), 32GB memory, AIX.
- Source: Dell Computer for Intel® Itanium® 2 processor 6M results on a cluster of 16 Dell PowerEdge® Servers, each with 2 Intel® Itanium® 2 processors 6M at 1.50 GHz, 4GB RAM, Red Hat Linux® AS 2.1. Source: [http://www.film.com/servers/enterprise/hardware/system\\_bartpdf](http://www.film.com/servers/enterprise/hardware/system_bartpdf) for Best RISC result of 148.3 GFLOPS on IBM eServer® p690 with 32 Power 4+ processors at 1.70 GHz.
- Source: [www.tpc.org](http://www.tpc.org); HP Superdome® Server, 707.102 tpmC at \$9.13/tpmC, with 64 Intel® Itanium® 2 processors, each at 1.50 GHz with 6MB of L3 cache, running Microsoft Windows® Server 2003, Datacenter Edition and Microsoft SQL Server® 2000 Enterprise Edition 64-bit, with 512 GB RAM. TPC-C Availability date: Oct. 23, 2003. Best RISC using HP 9000 Model Superdome® Enterprise Server, 423.41 tpmC, \$18.64/tpmC, with 64x four (64) HP PA-RISC 8700 processors at 875 MHz, running HP-UX® 11i 64-bit, Oracle® Enterprise Database Server 9.2.0.4, 256GB RAM. Available: 9/26/2002.

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ageable IT infrastructure for the future. With the Intel Xeon processor MP and Itanium 2-based platforms, Intel and its customers gain the ability to scale out and up—functionality that delivers the business benefits detailed above.

To provide customers with the computing platforms necessary to achieve these business benefits, Intel poured over \$9.5 billion into R&D and manufacturing innovation in fiscal year 2002. Much of this investment went to enrich the Intel Xeon processor family and fuel the emergence of complementary Intel Itanium 2 processors (see boxes, p. 3 and p. 4).

## THE ROI OF ARCHITECTURE INVESTMENT

Intel's R&D investment might seem counterintuitive to cost-conscious IT leaders, but industry analysts say forward-thinking companies are on the right track to reap business value from continued investment in server infrastructure. "Companies under-invest in technology at their peril—even in lean times," reports worldwide management consultancy McKinsey & Co. "New technology, deployed intelligently, can help organizations make dramatic leaps in productivity and redefine competition within [entire] sectors."<sup>1</sup>

Enterprise architecture expenditures are an especially smart investment in future business benefits, says Jeffrey Hewitt, principal analyst with Gartner Inc.

"As worldwide economies begin to show recovery, server infrastructure improvements will come back into the picture because companies seek to stay competitive and upgrade aging hardware platforms," Hewitt says. The server market segment's return to growth will be fueled primarily by Intel on the processor front and by Windows® and Linux® from an OS perspective, he adds.

These market trends and independent analysis point to a common conclusion: IT leaders must meet today's common business challenges—and tomorrow's—by investing in flexible, scalable, interoperable technology solutions. The unpleasant alternative is to risk falling behind in the race to generate new business value and drive innovation.

## POWERFUL PLATFORMS = PEAK PERFORMANCE

**It isn't just about the infrastructure.** Intel Xeon processor MP and Itanium 2 processor computing engines fuel more than a stronger, increasingly versatile IT



foundation. They also enable companies to gain new business process efficiencies, streamlining business functions and enhancing employee productivity.

Business leaders realize that an advanced IT infrastructure can help extend their competitive advantages in key areas and, when coupled with improved processes and capabilities, drive innovation and new opportunities.

"As anyone on the Web knows, continuous enhancement is critical to attracting visitors and staying competitive," says Brian Farrey, president of TMP Technologies, a division of Monster Worldwide, which manages technology resources for its parent company (host of Monster.com). "The [Intel architecture] gives us more options and much faster development times when enhancing our site."

*Among the principal business benefits enabled by Intel's*

*evolving platforms:*

#### **Improved Online Transaction Processing and CRM:**

Intel Xeon processor MP-based platforms are ideal for mid-tier business critical applications, helping companies in all industries streamline business processes. Among the business results enabled by Intel Xeon processor MP-based platforms: improved customer relationship management, collaboration and business intelligence.

#### **Maximized Databases, ERP, SCM and High-Performance Computing:**

The Intel Itanium 2 processor is uniquely designed for the most demanding, data-intensive enterprise applications. These high performing computing engines enable businesses to deploy their highest-end enterprise applications (e.g. large databases and business intelligence) on cost-effective Intel-based servers, instead of those based on RISC architectures.

## **Intel in Action: Powering the Enterprise at NASDAQ<sup>†</sup>**

Like many enterprises in financial services, NASDAQ has banked heavily on—and is continuing to evolve with—platforms based on Intel® processors to keep pace with soaring transaction volumes driven largely by increased demand for instant information.

The company has also recognized the need to simplify and consolidate its hardware architecture to streamline development, deployment and support, having once had over a dozen hardware architectures in house.

Its efforts of late have been to harness Intel® Xeon™ processor MP-based systems to run the database engine for

three emerging market data applications, as well as mission-critical applications launched and repeatedly enhanced over time.

"Intel Xeon processor MP and the future delivery of Intel® Itanium® processor family-based systems hold the key to NASDAQ's long-term business direction," says Richard Lind, SVP, technical operations for the firm. "They've laid out a very well-defined roadmap for driving down the cost of their processor technology while increasing the functionality it provides."

As a result, NASDAQ will migrate to the Intel Itanium processor family to power the core of SuperMontage®, a "matching" engine that continually builds an internal representation of all buy and sell interests in a marketplace, and matches quotes and orders to produce instant execution functionality.

The data is fed into the three market data applications—DepthView®, PowerView® and TotalView®—that are powered by Intel Xeon processors MP and were taken live late last year. NASDAQ uses Intel Xeon processor MP-based Dell 6650® servers running Windows 2000 for the application suite, and has supercharged the database power of a custom application, Surveillance Delivery Real-time (SDR), which analyzes market transactions and sends alerts to analysts for review. SDR handles 2,800 trades and 1,400 quotes per second.

"We're very impressed with the performance and future of the advanced Intel platforms and see them as the foundation for our future computing strategy," says Lind.

For more information about NASDAQ, visit [www.nasdaq.com](http://www.nasdaq.com)



## Intel Alliance Profile: Microsoft

### Featuring SQL Server\* 2000 Enterprise Edition†

With the growing complexity and competitive nature of business computing today, companies require their applications and databases to process and analyze massive amounts of data in a fast and efficient manner. Microsoft SQL Server\* 2000 Enterprise Edition is available in both 32-bit (for Intel Xeon processor MP) and now 64-bit (for Itanium 2-based platforms) versions, both of which are designed to help firms scale as their global users continue to grow.

SQL Server 2000 Enterprise Edition 64-bit on Itanium 2-based platforms opens a new chapter in high-end database computing at lower costs than Unix-based systems available today. Microsoft's commitment to Itanium architecture expands the scalability options for memory-intensive data applications such as large-scale e-commerce, data warehousing and analytics.

**Best Performance and Price/Performance<sup>3</sup>:** SQL Server 2000 64-bit delivers the fastest performance in non-clustered computing at 707,102 transactions per minute on the Itanium 2-based platform. It also delivers the best performance and price/performance for business-critical solutions on a 4-way Itanium 2-based server. Harnessing Itanium 2-based servers that support up to 512 gigabytes of RAM, SQL Server 2000 Enterprise Edition takes advantage of the advanced memory addressing capability to support rapid growth in mission-critical applications.

**Easy Migration and Fast Deployment:** Customer databases can be easily migrated from 32-bit to 64-bit, maintaining 100 percent T-SQL compatibility. No changes are required in client applications, which makes the job of database administrators and developers easier when deploying a 64-bit database into their server farm.

And with the ability to install up to 16 database engine instances on a single server, Microsoft offers the best economics of managing multiple types of high-end applications. With this package, companies realize these benefits while continuing to enjoy the familiar database environment, data access and formats to which they have grown accustomed. For additional information on Microsoft, visit [www.microsoft.com/sql](http://www.microsoft.com/sql)

services, manufacturing, retail, government and communications. This is done to ensure that Intel's technology is put to work delivering strong ROI, lower TCO, and meeting specialized industry needs.

McKinsey & Co. recently singled out Intel for its success in delivering solid business results. "Intel has concentrated on new, higher-value goods, thereby generating extraordinary productivity advances as microprocessors and memory chips become exponentially more powerful though not exponentially more expensive."<sup>3</sup>

And, as shown in customer case studies such as JetBlue, Intel's powerful products, solutions and expertise are driving dramatic new business solutions—and value—across several key industries.

By taking JetBlue's lead—by making smart investments in enterprise architecture—well-established industry leaders find that they, too, can deploy critical business applications that can be described just like the upstart start-up's.

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<sup>3</sup> The McKinsey Quarterly Newsletter, May 6, 2003.

<sup>1</sup> Source: <http://www.tpc.org/> As of May 20, 2003: HP Superdome\*, 707,102 tpmC, \$9,130/tpmC, with 64 Intel Itanium 2 processors at 1.5 GHz, each with 6MB L3 cache, running Microsoft Windows® Server 2003, Datacenter Edition and Microsoft SQL Server\* 2000 Enterprise Edition 64-bit, with 256 GB RAM; available 10-23-2003

† Results and information are reported by end-user or vendor and not verified by Intel. Results may not be representative and may vary. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing

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cheap credit cards. Many e-mail programs can filter junk. Shouldn't ISPs also have the technology to block spam from ever reaching their outgoing servers?

So what's behind the foot-dragging by Gates and Microsoft? Well, any punitive action or technology requirement targeting ISPs would certainly affect Microsoft's Hotmail, MSN and bCentral online services. Also, Microsoft doesn't like being told what to do — especially by the government. The company's responses to spam have included stumping for best practices, mediating customer disputes and waiting until independent trusted authorities can certify legitimate e-mail solicitations. But where's the clout? Without the threat of financial pain, what's to prevent spammers from moving to another domain, enlisting better technology or ignoring these non-governmental lobbies altogether?

There's lots of money behind the notion of certifying good online marketers and weeding out the baddies. By being able to slice and dice the online audience, Microsoft will be able to fence-sit this issue: It can create anti-spam teams (and publicity) while simultaneously reaping the rewards from "good" online marketers.

But there's one major problem with attempting to label good online marketers with a seal of approval: Who, I wonder, would wield that rubber stamp? ▀

## DAVID MOSCHELLA Consolidation Claims Lead To FUD

**I**N MY COLUMN last month [QuickLink 38788], I argued that a simple trip to the dictionary should be enough to remind us that IT isn't a mature industry, no matter how fashionable it has become to claim otherwise. Similarly, much of the rationale for Oracle's ongoing efforts to acquire PeopleSoft has been based on an equally dubious claim: that the IT industry is consolidating.

I have been researching, analyzing and forecasting the IT marketplace for most of the past 25 years, and for the

great majority of this time, people have been either predicting the imminent consolidation of the IT supplier base or claiming that it's already under way. Yet somehow during this time, the number of significant companies in the IT industry has continued to grow rapidly, from perhaps a hundred in the late 1970s to literally thousands today.

The consolidationists have got both their numbers and their analogies wrong. Most readers have probably heard, for example, that there were once more than a hundred automakers, whereas today there are roughly a dozen. But too often, no one mentions that while the number of car manufacturers has fallen, the number of companies that are part of the global automobile industry has soared into the hundreds of thousands. The same pattern is proving true for the IT business.

Our exaggerated sense of IT industry consolidation stems from relatively narrow and short-term thinking. Clearly, many IT markets have followed a pattern that eventually results in fewer,



DAVID MOSCHELLA's latest book is *Customer-Driven IT: How Users Are Shaping Technology Industry Growth*. Contact him at [dmoschella@earthlink.net](mailto:dmoschella@earthlink.net).

more dominant suppliers. A handful of start-ups might launch a new sector, but as the market expands, it creates both the revenue opportunities and specialized customer needs that attract new entrants. However, just as trees don't grow to the moon, this expansion inevitably slows, and the number of participating companies shrinks. We have seen this pattern with mainframes, mini-computers, PCs, storage devices and many software and networking products.

But this consolidation within existing segments has always been more than offset by the creation of new markets and the ever-expanding services that support them. Whether one is looking at hardware, software or networking, the result has been an increasingly fragmented IT industry. As silly as it seems today, many informed people were once deeply worried about how IBM, AT&T and "Japan Inc." would eventually dominate an overly consolidated IT business.

All of this is being repeated with

Oracle/PeopleSoft. Larry Ellison is certainly right that some consolidation in today's bloated enterprise software business is likely, and even desirable and that large mergers and acquisitions will inevitably be part of this process. Just look at the consolidation within the database market over the past 10 years. But as in the past, the assertion that the overall software business will also consolidate into a few big players will be proved wrong. Future innovation and specialization will assure that this won't happen.

Misleading claims of maturity and consolidation matter much more than might be initially apparent. To the extent that customers adopt these inaccurate views, they will develop an unnecessary bias toward not just Oracle, but all of the software industry's largest players. Thus, Ellison and others have a strong incentive to promote what is ultimately a self-serving idea. But it's mostly just a semi-sophisticated form of fear, uncertainty and doubt and should be viewed and treated as such. ▀

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## READERS' LETTERS

### Security Risk Is a Phantom Menace

**I**T'S SAD to see IT and security managers struggling to measure and manage security risk ["IT Managers See Need for Risk Metrics," QuickLink 38973]. I have conducted research for 35 years, interviewing more than 200 computer criminals, and I concluded long ago that as long as security remains imperfect, security risks (expected frequencies of adversities, not to be confused with business risks) aren't measurable in most cases because they're created by and under the control of our unknown enemies.

As noted in the article, there are insufficient loss statistics applicable to specific organizations on which to base valid risk assessments. Therefore, security risk can't be measured, controlled or managed. As Carl Cammarata rightly said in the article, "You can't manage what you can't measure."

The old, negative risk-reduction objective should be replaced with a positive one of achieving due diligence and good practices. It's more

important to meet increasing regulatory and legal requirements and comply with standards.

We should use the good safeguard products and services provided by the multibillion-dollar security industry and benchmark relative to our common body of knowledge and the practices of well-secured, similar organizations.

By using these practical due diligence methods, we avoid negligence and more likely serendipitously reduce both the known and unknown risks created by our unknown enemies.

**Donn B. Parker, CISSP**  
Los Altos, Calif.

### Engineering the Corporation

**T**HE PROBLEM with reengineering can be found in the word itself ["Reengineering Revisited," QuickLink 38981]. The "re" implies that companies have been engineered in the first place. I love business, and I think business-process engineering is a wonderful idea, but

### Makes Sense

**R**OBERT L. SCHEIER'S "Surviving Software Upgrades" [QuickLink 38227] was an excellent common-sense article. Articles such as these will help the IT specialist to work more effectively with business owners and upper-level management.

**Kris Molitor**  
Consultant, Rockford, Ill.

### Finding Time for IDS

**C**ONTRARY to Gartner's position, I find intrusion-detection systems to be very valuable ["IDS Criticisms Kindle Debate," QuickLink 39336], assuming you have

someone who understands IDS and the network and who can analyze the captures. At my company, we have hundreds of examples of hack attempts and network problems that were resolved thanks to our IDS. This makes it worth it for us. Firewall traffic analysis isn't sufficient; Gartner's own statistics show that most hack attempts are by internal users. Organizations that can't dedicate time to operate an IDS shouldn't buy one.

**Corey Whelpley, CISSP**  
Santa Ana, Calif.,  
[corey\\_adam@hotmail.com](mailto:corey_adam@hotmail.com)

**COMPUTERWORLD** welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: [letters@computerworld.com](mailto:letters@computerworld.com). Include an address and phone number for immediate verification.

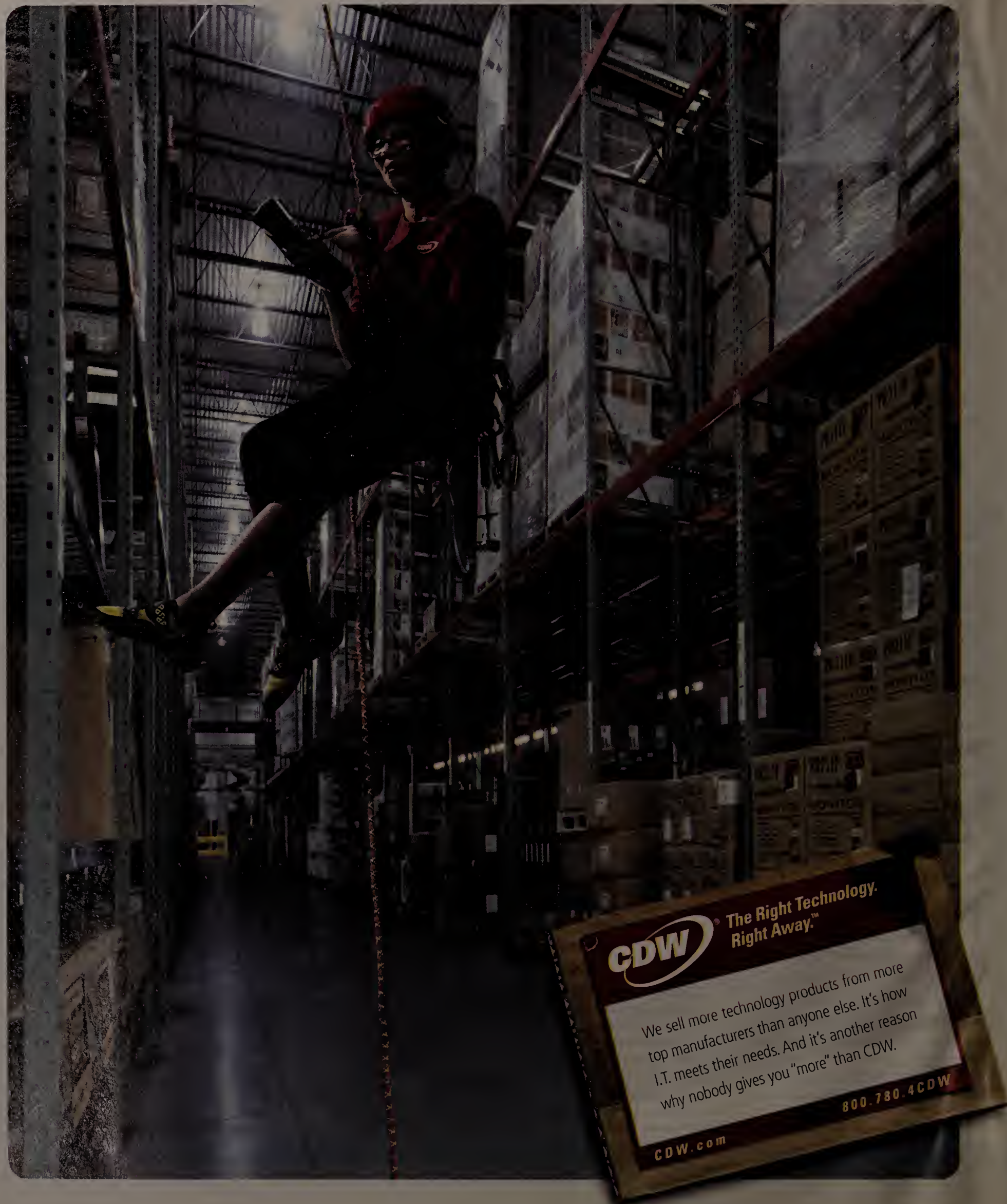
For more letters on these and other topics, go to [www.computerworld.com/letters](http://www.computerworld.com/letters)

as an engineer, I find the term *re-engineering* insulting. Why don't we just call it business engineering? If something falls off of a wagon, we can't refer to it as "engineered." It simply exists.

**Kirk J. Gould**  
Phoenix, [gouldkj@juno.com](mailto:gouldkj@juno.com)



> 9:32 am. Martha Watson counts over 1,200 name brands in order to justify the word "more" to the legal department.



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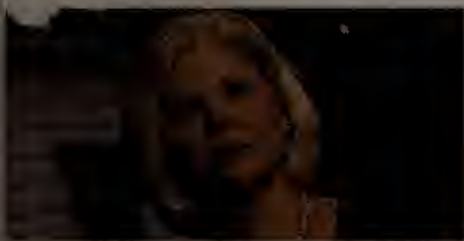
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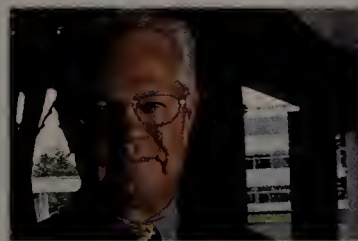
# KNOWLEDGE CENTER SECURITY

07.14.03



## Know Thy Users

With the proper identity management system, you can save money, make users happy and improve your IT security. Here are strategies for making the right choices from users like Ann Garrett (left), chief information security officer for the state of North Carolina. **Page 30**



## Strengthen Security During Mergers

With merger and acquisition activity on the rise, users like Bobby Gillham (left), manager of global security at ConocoPhillips, offer advice on how to protect your company's assets and bolster security at the combined business. **Page 36**

## EDITOR'S NOTE

**R**ISK IS EVERYWHERE. Just stepping out your front door in the morning involves some risk. So does staying inside with the furniture.

As author Bill Bryson points out, government figures show that more than 400,000 people in the U.S. are injured by chairs, sofas and sofa beds in the course of a year. How do they do it? Mind you, we're talking about injuries that require a trip to the emergency room. That's about 10 times more than the number of people injured by skateboards, trampolines or scissors!

Of course, it's no surprise to you that risk comes in many forms. In the field of IT security, the threats include disgruntled employees, fired employees, clueless employees who succumb to social engineering, passwords left on Post-it notes, wide-open instant messaging and increasingly powerful hacker tools in the hands of teenagers.

This special report has dozens of tips to help you manage those risks. But before you implement any of them or buy another security product, do one thing: Stop to identify the three biggest security risks your company faces — whatever would bring your company to its knees. They will vary, depending on your industry and business model. Is it theft of credit card numbers? Embezzlement? Privacy violations?


Be sure to address those high-risk areas first, before looking at more exotic problems. Take care of the basics: passwords, patches, employee training, antivirus software and access controls. If you can't keep up, consider outsourcing.

And don't stub your toe on the furniture. ►

Mitch Betts is Features editor at Computerworld. He can be contacted at [mitch\\_betts@computerworld.com](mailto:mitch_betts@computerworld.com).

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 **QuickLink k1600**  
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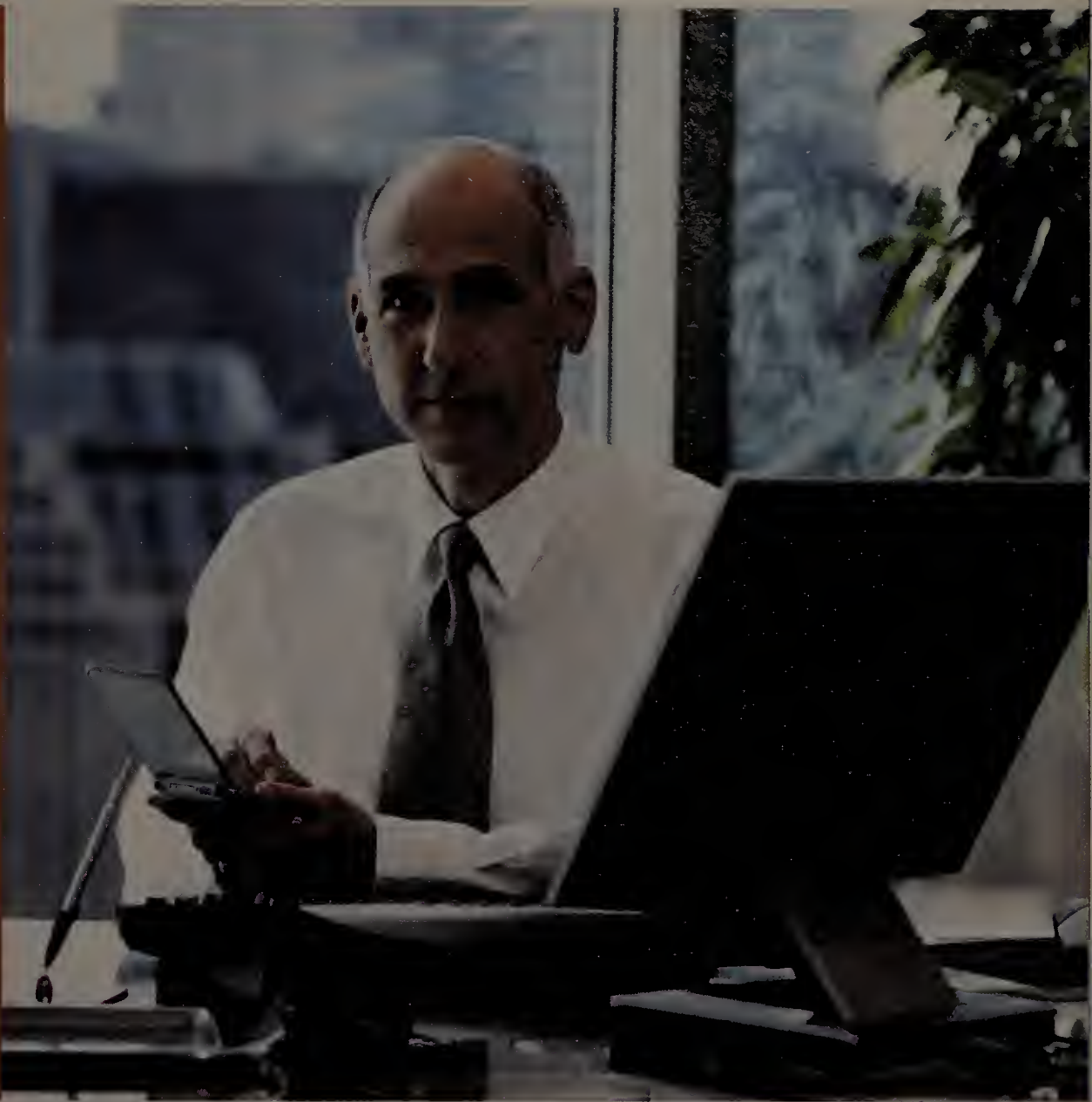


**I want**

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employee  
in every office  
to have  
easy access.



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coverage and  
the fastest  
speeds available  
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**F**RED COHEN ALREADY knew about worms, Trojan horses and hackers in November 1983. But as a graduate student participating in a weekly seminar on computer security, Cohen was interested in a new class of security threats: a program that reproduced itself by attaching to other programs. It took eight hours for Cohen to create his virus and nearly a week to get permission to test it on a large Unix computer at the University of Southern California.

And the virus worked frighteningly well. During each of five tests, the virus infected files and gained full system rights on the machine in less than an hour — in one test, it took less than five minutes. After that, USC systems administrators banned all further security experiments on their computers.

Other computer security threats had been around for two decades, since the early days of time-sharing. Defenses against them were mostly ad hoc and used on systems only after they had been attacked. But viruses, which spread largely through desktop PCs, would prove to be the threat that turned computer security into an industry.

By 1986, viruses were attacking IBM PCs and Apple II computers. In 1988, the first Macintosh virus appeared, and so did the first commercial antivirus software.

But in 1989, the problem was large enough that IBM sent antivirus software it had developed for internal use to large customers, along with a letter explaining what it was for. Suddenly, large companies

# The Story So Far

An all-too-successful computer experiment eventually spawns the antivirus software industry. By Frank Hayes

were thinking about computer security — and antivirus software became big business.

But viruses weren't the only threat. In November 1988, a worm program released on the Internet infected 6,000 servers — 10% of Internet host machines at the time — and crippled the network for days.

In the wake of the worm, the U.S. Department of Defense set up the Computer Emergency Response Team (CERT) Coordination Center at Carnegie Mellon University in

Pittsburgh to improve communication about future incidents. In 1989, the Department of Energy set up its own Computer Incident Advisory Capability at Lawrence Livermore National Laboratory.

In 1990, security researcher Eugene Spafford at Purdue University coined the term *firewall* for a system that would protect individual networks from threats such as worms. One of Spafford's students, Daniel Farmer, developed the Computer Oracle and Password System (COPS), the first publicly available security scanner.

And in 1991, the first commercial security firewall was set up for Du Pont Co. by Digital Equipment Corp. Digital adapted its own corporate firewall to create the product.

But by the mid-1990s, protection from outside threats was no longer enough. E-commerce required protec-

tion while information was traveling across the Internet. Netscape Communications Corp. developed the Secure Sockets Layer (SSL) standard in 1994 to add automatic encryption and authentication to TCP/IP.

The same year, two developers at Enterprise Integration Technologies, Eric Rescorla and Allan M. Schiffman, created the Secure Hypertext Transfer Protocol, which allowed individual HTTP messages to be encrypted, signed or authenticated.

In 1998, attacks on Web sites and other government systems spurred the Department of Justice and the FBI to create the National Infrastructure Protection Center (NIPC), a joint effort by the government and private sector to prevent both physical and cyber attacks on computer networks.

Security concerns soared as the year 2000 approached, and "chief security officer" became an executive title at as many as half of large companies (though CSOs had been around as early as 1996). Microsoft Corp. appointed its own CSO in 2002, and after an embarrassing string of security holes in its products, stopped all new programming for a month to retrain its programmers and examine old code for security problems.

In the nearly two years since the terrorist attacks of Sept. 11, 2001, security has been a top IT priority — at a time when budgets are tighter than ever. And corporate IT security people will need to use existing resources, tap existing knowledge and, most of all, avoid reinventing the wheel if they want to squeeze the most out of every dollar.

And now, on with the story. . . .



**1988:** After Robert Morris' worm program cripples the Internet for days, the Defense Department sets up the CERT Coordination Center at Carnegie Mellon. ▶

**1988:** Dr. Alan Solomon creates the first widely used antivirus software.

**1994:** The SSL standard developed by Netscape adds encryption and authentication to TCP/IP.

**1998:** The government establishes the NIPC to counter physical and cyberattacks against the Internet.

1980

1990

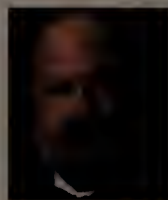
2000

2010



◀ **1983:** Security researcher **Fred Cohen** demonstrates the first documented experimental virus at the University of Southern California.

**1990:** Daniel Farmer develops COPS, the first publicly available security scanner.



◀ **1990:** **Eugene Spafford** coins the term *firewall*.

**1991:** Du Pont installs the first commercial security firewall.

**1999:** Chief security officers are appointed at nearly half of companies with more than \$1 billion in revenue.

**2002:** Microsoft stops all coding for a month to retrain programmers and examine old code for security problems.





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A swimmer is shown from the waist up, moving through a swimming pool. The water is dark blue with white lane lines visible. A large, white, shell-like object is attached to the swimmer's back, partially submerged. The swimmer's arms are extended forward, and their head is slightly above water.

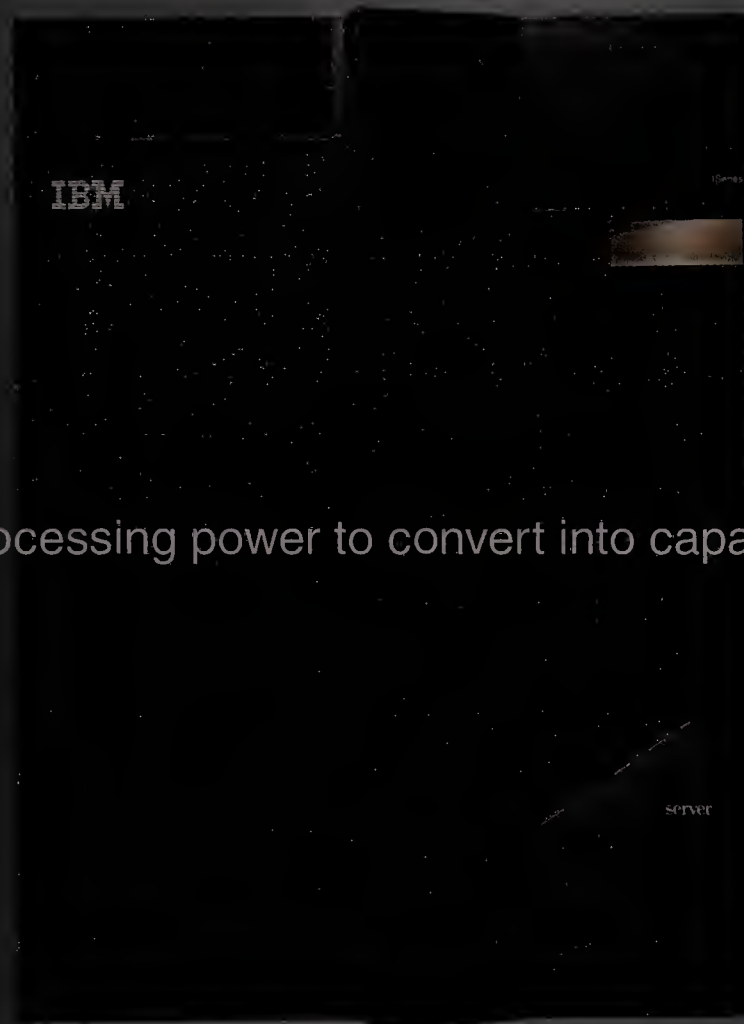
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**Y**OU'VE GOT thousands of employees tapping into a dozen internal enterprise applications apiece, a growing base of external business partners and a slew of customers visiting your new portal. You need to give this fluid population the right channel for reaching their authorized resources. You need an identity management system.

An identification management system will help stem a flood of user-access complaints and serve as an essential bulwark to your security system. If you don't have one, build one. But build it right the first time by addressing your most pressing needs now, with an eye toward adding features in the future. There are proven ways to do this, so don't be the poor soul who doesn't get it right the first time.

"I was talking to a client the other day who was developing a very customized proprietary [identity management] solution that didn't leverage standards," says Roberta Witty, an analyst at Gartner Inc. "The application was very questionable from an infrastructure perspective. You have to ask, Who's liable in that case?"

Most identity management projects can be broken down into these areas: Planning, adopting standards, determining when to centralize password administration and when to delegate it, and leveraging early successes to cost-justify future initiatives. Here are some tips for implementing an identity management project.

**TIP 1** **Plan a quick-hit list.** Start by determining what portions of identity management will make the most positive impact on your business today. For example, when the state of North Carolina began looking at its identity management needs in January 2000, the state's Office of Information Technical Services (ITS) determined that the most important thing to address first were password resets, which chewed up 40% of help desk costs, according to Ann Garrett, chief information security officer for the state.

"We have 75,000 users using different systems who were forgetting their passwords, and I couldn't afford to be in business any longer," says Garrett.

ITS wanted a tool that would give users the ability to reset their own passwords with a challenge-response system; it chose Oblix Inc.'s NetPoint.

"The system has a Resume feature, so when a user forgets their password, all they have to do is answer a secret question, which takes the overhead off the administrator," explains Brent



**“**We have 75,000 users using different systems who were forgetting their passwords, and I couldn't afford to be in business any longer.

**ANN GARRETT**, CHIEF INFORMATION SECURITY OFFICER, STATE OF NORTH CAROLINA

With the right identity management system, you can save money, make users happy and improve your IT security. Woe to those who ignore it. **By Deborah Radcliff**

# Know IT



Roberts, the state's identity administrator. Now, he adds, password reset requests have dropped to nearly zero.

**TIP 2** Plan for the long haul. But it wasn't just the immediate password reset needs that North Carolina looked at, continues Roberts. ITS also took into account the state's long-term access initiatives, starting with a Web-based portal that state employees can use to access their human resources and other interoffice data, which was recently deployed online.

"We needed an infrastructure that could support the coming onboard of agencies in phases," Roberts explains. "So we put workflow and policy into the system that allows employees to change some of the noncritical fields, such as an office phone number. But other fields, like what data resources an employee has access to, are handled by their managers."

The next initiative is to open certain data first to state-based businesses and later to citizens. For that, the infrastructure must also support a variety of end-point access controls such as tokens, smart cards and biometrics, which may be coming in 2005, Roberts says.

**TIP 3** Think standards. The only way to facilitate North Carolina's short- and long-term plans was to build an identity infrastructure based on standards, which is another reason the state decided on Cupertino, Calif.-based Oblix, says Roberts.

For starters, Oblix works with the state's current directory standard, Lightweight Directory Access Protocol. But it also supports current and up-and-coming Web-based standards, including an XML-based authentication and authorization standard called Security Administration Markup Language and an emerging provisioning standard called Service Provisioning Markup Language — both of which come out of the Organization for the Advancement of Structured Informa-

## THE DELEGATED ADMINISTRATOR

### Managing by Delegating

#### **TIP 6** Know when to delegate.

Like the state of North Carolina, about half of PricewaterhouseCoopers' clients start their identity management projects to address Web-based access needs, says Gary Loveland, a partner at the consulting firm. Doing this successfully calls for a delegated administration system, which lets end users start the process of registration themselves and delegates management of their user identities to department managers or systems administrators.

Nowhere is delegated administration more critical than in a business like Covisint LLC, a Southfield, Mich.-based online exchange for automakers, their suppliers and industry trade groups. With so much competitive information at stake, Covisint must guarantee that the 100,000 users logging on to the exchange to bid on work and to access manufacturer specifications and other data cannot skip around to reach their competitors' data, says Dave Miller, Cov-

isint's chief information security officer.

But managing all those user IDs was impossible to do centrally, Miller says, and the number will soon double when DaimlerChrysler AG is added to the identity management system. So, with the help of RSA Security Inc.'s ClearTrust identity management suite, Miller has brought the number of user IDs under his domain to a manageable 10,000.

To do this, he established a root administrator at each of Covisint's member organizations to manage their own in-house users accessing the portal, he says. Importantly, ClearTrust is also able to handle complex hierarchies of delegated administrators, since some of them are also responsible for managing accounts at their subsidiary companies.

Access approvals are finalized through an automated e-mail trail between the requesting administrator, Covisint and the manufacturer. Deprovisioning is also handled through e-mail.

— Deborah Radcliff

tion Standards in Billerica, Mass.

With standards-based infrastructures, you can plug in new rules and roles, and you can add cross-vendor identity management applications as they develop, says Gary Loveland, a partner in the security and privacy practice at PricewaterhouseCoopers in New York. In addition, a standards-based infrastructure makes it easier to grant access to outside business partners without making them use the same products you use, adds Witty.

**TIP 4** Know when to centralize administration. Just as many organizations prefer to centralize administration of user accounts, says Loveland. This choice is usually made when a company determines that its most important identity management problem

is inconsistent user data and rogue internal user accounts, particularly when workflow policy is already centralized around the company's human resources system.

This element of identity management is called user provisioning. For example, ProBusiness Services Inc., a human resources outsourcing services and technology vendor in Pleasanton, Calif., determined that its most immediate ID management problem was cleaning up inaccurate user account information for its 1,500 distributed employees whose metadata (telephone numbers, titles, spellings and the like) was often different than that stored in the company's Siebel Systems Inc. human resources system.

Human resources wanted to maintain control of adding new users and provisioning their resources, along with deleting users and deprovisioning their resources upon termination or transfer. In addition, human resources requested a system that could help enforce hiring, staffing and salary guidelines and alert the human resources managers when such policies are violated, says Phil Blank, vice president of IT at ProBusiness.

For this, Blank's team settled on Austin-based WaveSet Technologies Inc.'s Lighthouse Enterprise Edition because it has built-in connectors to Siebel and because it could provision anything — access to data resources, telephones, office space, even parking spaces. More importantly, it keeps user data consistent from application to application. And it automatically deprovisions access to data resources, ending the dangerous problem of having rogue passwords that trespassers can use to break into systems.

"The payback," Blank says, "is the human resources folks say they're seeing tremendous efficiencies in terms of accuracy of user information. And they don't have to spend so much time doing clerical work."

**TIP 5** Work in phases, and justify each through ROI. Baking in money-saving and efficiency features like the human resources policy enforcement tools that ProBusiness added will go a long way toward helping IT departments justify subsequent

phases of development, says Wendy Steinle, director of marketing for Novell Inc.'s Nsure identity management products.

And identity management is a lot easier to bite off in phases, say IT man-

agers. Start with steps that can show a return on investment or cost savings, such as North Carolina's reduced help desk costs, which Garrett believes will pay for the state's identity management system in two years. She uses these numbers to cost-justify future projects, such as the addition of more robust access controls.

"Identity management done the right way can save a lot of money," adds Steinle. "That takes planning, evaluating your solution options, building a road map and creating measures of success." ▀

Radcliff is a freelance writer in Northern California. She can be reached at [derad@aol.com](mailto:derad@aol.com).

# my Users



## SNAPSHOTS

### Does your company currently have a business continuity plan?

More than one-third of the chief financial officers who responded to a recent poll said they don't have a business continuity plan to recover from disasters.



Base: 1,400 CFOs at U.S. companies with more than 20 employees.

SOURCE: ROBERT HALF MANAGEMENT RESOURCES, MENLO PARK, CALIF., JUNE 2003

### Consumer Insecurity

Consumers who don't use online banking cite the following reasons:

Concerned about security	26%
Not comfortable doing banking business online	22%
Prefer to do all banking business face to face	21%
Concerned about privacy	6%

Base: 1,571 U.S. consumers who don't bank online; multiple responses allowed.

SOURCE: TOWERGROUP, NEEDHAM, MASS., JUNE 2003

### Asian Epidemic

Security breaches in the Asia-Pacific region have reached epidemic levels, especially in China.

- 75% of software developers in the Asia-Pacific region reported a security breach in the past year.
- 84% of developers in China reported a security breach in the past year.
- 60% of developers in China reported three or more breaches in the past year.

Base: 600 software developers in the Asia-Pacific region.

SOURCE: EVANS DATA CORP., SANTA CRUZ, CALIF., MAY 2003

MARK HALL

# Feeling Insecure

**T**HE FIRST TIME MY NAME got me into trouble was in high school. A football player heard that I had taken his girlfriend out on a date, and rumor had it he was "gonna pound" me. When I met the big fella, it took a lot of time and people to convince him that he had the wrong Mark Hall, despite his 5-foot-10-inch girlfriend's denial she'd ever met my 5-foot-4-inch self.

Recently, our sister publication CIO hired Mark Hall to lead its IT department. Congratulations have been coming in fast and furious — and curious, because no one knew I had such skills. And our parent company, IDG, even sent me a cell phone destined for him. (Now, if only they'd send me his paycheck, too.)

So, you can see why I'm feeling nervous in this new era of heightened security. Oh, I don't mind the gun-toting guards in airports and at public venues. I've traveled abroad enough to be sanguine about seeing uniformed men and women toting Uzis and Glocks. What I fear are those armed and dangerous databases our government and commercial entities are compiling; they could contain false positives on "Mark Hall" and other innocents in the war on terrorism.

It doesn't comfort me to know that the Defense Advanced Research Projects Agency (DARPA) has changed the name of its Total Information Awareness (TIA) project to Terrorist Information Awareness. After all, TIA's intent remains the same: to create integrated and efficient access to information in various public and private data silos and process it in order to thwart terrorist plots. As DARPA researchers told Congress in late May, the agency can't guarantee "the accuracy and utility of any information retrieved by TIA's search tools, [but] consideration should be given, in implementation, to the quality of the databases to be queried." In short, false positives will persist, giving me nightmares that Donald Rumsfeld, a former champion wrestler, will someday come over to my house to pound me.

Then there's Regulatory DataCorp International LLC (RDC). Last year, *Computerworld* wrote about the newly formed commercial operation, noting that "Regulatory DataCorp will compile information from public resources, including international, federal and local law enforcement records. It will then sell access to the database to other companies so they can screen potential customers" [QuickLink 30371].

RDC's users are primarily financial institutions that, by statute, must make every effort to weed out lawbreakers of all stripes. According to Chief Operating Officer Peter Nitze, as of last month, RDC already had "a little bit under 1.5 million names" in its data-

base. Could "Mark Hall" be one of them?

Solving the false-positive problem in these massive databases isn't trivial. Stephen Brobst, chief technology officer at NCR's Teradata division, which is renowned for its monster databases, points to problems consumers have had with credit reports.

That's why Congress passed the Fair Credit Reporting Act, which gives us access to our credit histories to help assure us that they're accurate. It's unlikely that these counterterrorism databases will offer us equal protections.

But Brobst points out that the problem gets stickier because of the catastrophic risks of false negatives — that is, likely terrorists and other nasty folks who aren't added to the database because the criteria for adding suspects are too conservative. As such, he thinks the tendency will be to protect against false negatives, increasing the odds of false positives.

Nitze agrees. That doesn't mean RDC ignores the problem. It uses human analysts, who receive more than a month of training, to review identical names by searching for data discrepancies to ensure that the good Mark Hall (that would be me) isn't mistaken for his evil twin.

This conundrum hasn't gone unnoticed inside the Pentagon. A Defense Department spokesman tells me, "It's quite possible for the Muslim equivalent of 'John Smith' to create false positives." So DARPA has also designed procedures to cull out the false positives. But the tendency for the creators of these applications is to err on the side of inclusiveness. In other words, the more "Mark Halls," the better.

It will take time and experience before projects like TIA and RDC are able to balance real security needs with the thorny problem of false positives, which waste their time and resources. In the meantime, I'm considering changing my name to Marcusian Halloflowoskovich. Has a nice ring to it, don't you think? ▀



MARK HALL is a *Computerworld* editor at large. Contact him at mark.hall@computerworld.com.



# REAL-TIME BUSINESS ISN'T JUST ABOUT GETTING INFORMATION FASTER.

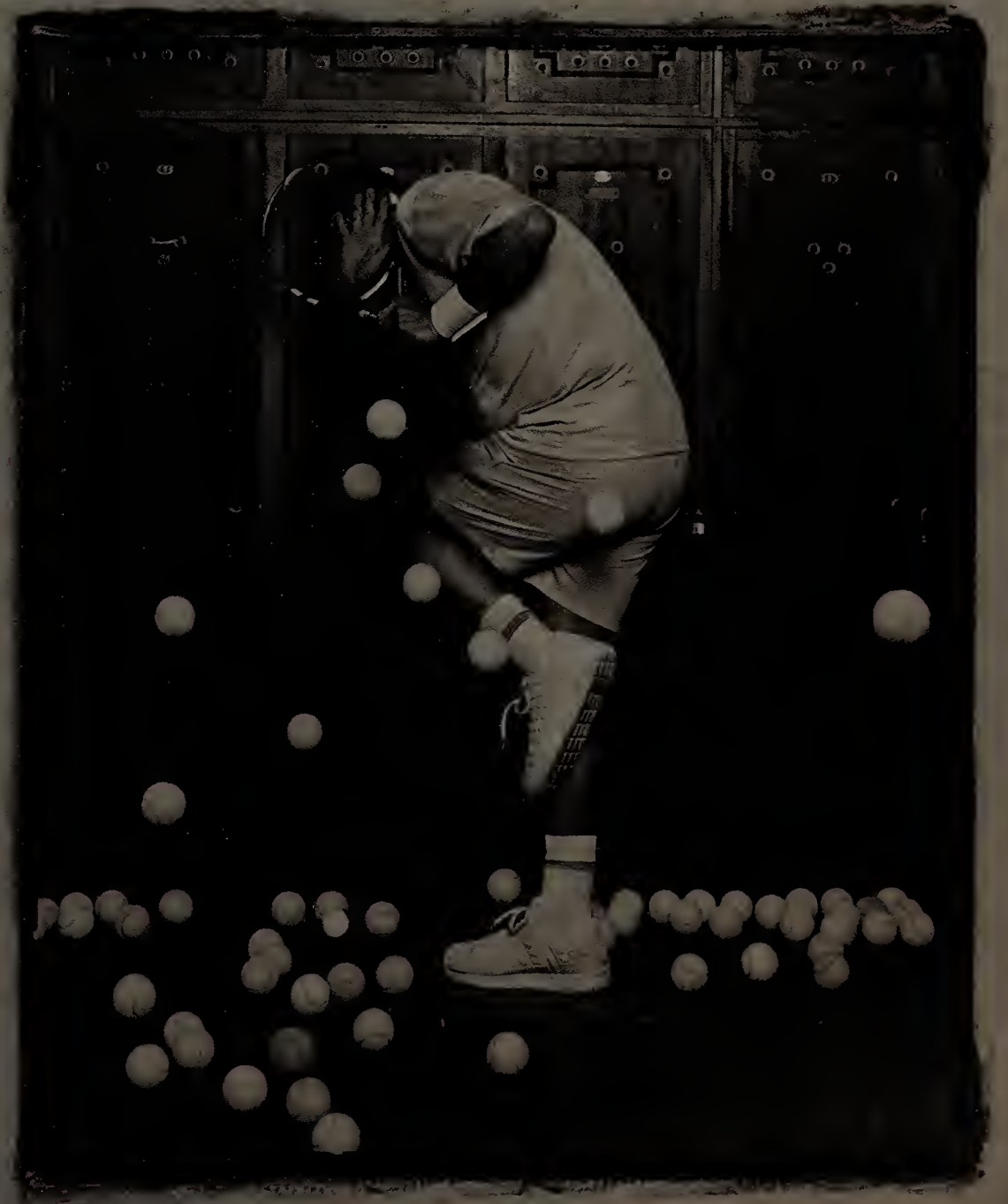
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### REAL-TIME IN ACTION: DELTA AIRLINES

Delta Air Lines partnered with TIBCO to create the Delta Nervous System, which connects Delta's 13 business units and 30 databases, and handles more than 5 million daily business events.

"The ability to share information with our employees and customers in real-time, and to automate how we share it, has allowed us to transform our business, improve customer service, and reduce costs."

—Curtis Robb, Delta Air Lines CIO,  
Delta Technology CEO



# Evaluate Outsourcing Partners

Outsourcing security to managed providers requires safeguards to guarantee service. Here are tips from companies that have signed over security to the experts. By Barbara DePompa



MARIA RAENDON

**W**ORKING WITH managed security service providers (MSSP) isn't much different from any other type of outsourcing commitment. All of the basic rules still apply, including setting specific requirements, incorporating strict service-level agreements with penalties, and re-evaluating your needs — and the provider's competencies — at regular intervals.

But when it comes to managing security functions, there are additional factors that can improve the relationship and the quality of security coverage provided by your MSSP.

**TIP 7** **Have a clear reason for outsourcing.** Figure out whether the service provider will deliver better security or run the company's information security operations faster and cheaper than you could in-house.

Merrill Lynch & Co., for example, signed a global, multiyear contract to have VeriSign Inc. monitor and manage hundreds of network security devices, primarily firewalls and intrusion-detection systems. "We picked VeriSign because of the company's expert skill in monitoring and its ability to give us better information than we could gather on our own. The goal wasn't to reduce costs; it was to improve security," says David Bauer, chief information security and privacy officer at Merrill Lynch.

**TIP 8** **Ask probing questions.** Jeff Nigriny, chief security officer at Exostar LLC in Herndon, Va., an online exchange for the aerospace and defense industry, suggests interviewing everyone at the MSSP about how they will provide coverage for your

company. How many times has the provider had to issue a credit for failing to meet the service-level agreement? And how financially stable is it?

**TIP 9** **Set a time limit for responses.** When Exostar contracted with TruSecure Corp., Nigriny included a clause in the a service-level agreement stating that TruSecure's response time to a problem couldn't exceed 15 minutes and that any configuration changes would have to be made within 30 minutes.

**TIP 10** **Remember: Monitoring for security breaches 24/7 simply isn't enough.** "The MSSP must filter through the alerts, respond to problems as they arise and tell me what was done in a report later," says Nigriny, who decided it was time to consider outsourcing when he was forced to sift through 3,000 incidents in a single day.

**TIP 11** **Use an MSSP that's nearby.** Paul Castellano, general manager of information services, IT security and disaster recovery at Hagerstown, Md.-based Allegheny Energy Inc., selected RedSiren Inc. more than two years ago, primarily because the MSSP filled key requirements and was headquartered in Pittsburgh, which is within driving distance of Castellano's office. While not everyone is able to jump into the car to visit a service provider, "you really don't want to be on a plane every time there's a briefing or presentation," he says.

**TIP 12** **Make sure the MSSP offers fail-over operations that at least match your own.** Castellano recommends using an MSSP that offers redundant network operations centers, which are critical for recovering from regional disasters. And even more important, he says, is the need to test those backup operations.

**TIP 13** **Understand and exploit the reports you get.** An MSSP's reporting tools can be used to benchmark your security coverage and recovery performance against those of scores of other companies. Allegheny Energy has used the RedSiren reporting tools to build a baseline and enable

Castellano's staff to perform monthly or quarterly "what if" security testing.

**TIP 14** **Think beyond the perimeter and "defend in depth."** That's the advice of Nick Brigman, a vice president at RedSiren. Nowadays it takes more than antivirus software and a firewall to secure operations. Consider adding multiple intrusion-detection sensors in different areas around the company to better protect critical assets. Some customers add such devices both outside and inside their firewalls, Brigman says, to detect and track the incidents that breach them.

**TIP 15** **Figure out how to escalate a problem and how to gain access to the "real" security experts inside the MSSP.** Chances are, when you call the MSSP for assistance about a security alert, the person who answers the phone may not be the key person you need, says Adam Joseph, former CEO of TruSecure and now an independent consultant. He says MSSPs typically don't keep many highly skilled security technicians on duty around the clock, so identifying the people with real expertise is critical to getting better service.

In general, experts say that the key is to develop a close, trusting relationship with the MSSP so the IT department can focus on strategic security goals while the MSSP handles the mundane daily operations. ▀


## SERVICE HYPE

**TIP 16** **Investigate each of the security services you expect to get. Ask your provider to supply a list of all services on offer, including the MSSP's own internal security team. So you can understand exactly what you're getting, make sure the MSSP is qualified to handle the services, and develop the relationship of the service provider's internal team.**

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## MORE TIPS ONLINE

Need more? We've got additional tips on security outsourcing on our Web site:

 **QuickLink 39686**  
[www.computerworld.com](http://www.computerworld.com)





Well, I was hoping to wear this new suede jacket I just bought, so I'm just kind of keeping my fingers crossed that it doesn't rain today.

AVAILABLE AROUND THE GLOBE

# IT guy has time to chat

Greg Brown, 33, seen talking freely to co-workers after deploying Nokia Message Protector

"I used to spend most of my day managing all kinds of different security products like anti-virus and spam rejection for our email system," a beaming Greg told reporters at a recent IT industry seminar. "Trying to plug holes between our desktops and gateways, looking after all those scanning technologies, trying to keep them updated — all of that kept me in the trenches. But it changed with the implementation of Nokia Message Protector. Now that we have secured communication paths, spam protection and intelligent filtering, I can come out of my bunker and get to

all the names of the people in the Finance Department, and some of them are quite cool — I even go to the staff cafeteria at lunch sometimes now. The food's quite boring, but the people I have met are great. It's terrific," was his response to one reporter's question about the automatic signature update feature. "My boss

exploit updates, but now I can reassure him, and he can focus on other things. Trying to plug holes between our desktops and gateways, looking after all those scanning technologies, trying to keep them updated — all of that kept me in the trenches. But it changed with the implementation of Nokia Message Protector. My boss had been worried about delays in getting the latest updates, but now I can reassure him and he can

## Introducing Nokia Message Protector.

Nokia has created a complete purpose-built appliance that integrates innovative security technologies including virus protection from Trend Micro™, with unique Nokia filtering software — known as statistical protection — to deliver new levels of enterprise email security. Nokia Message Protector deploys in minutes and provides secure, automatic updates to optimize



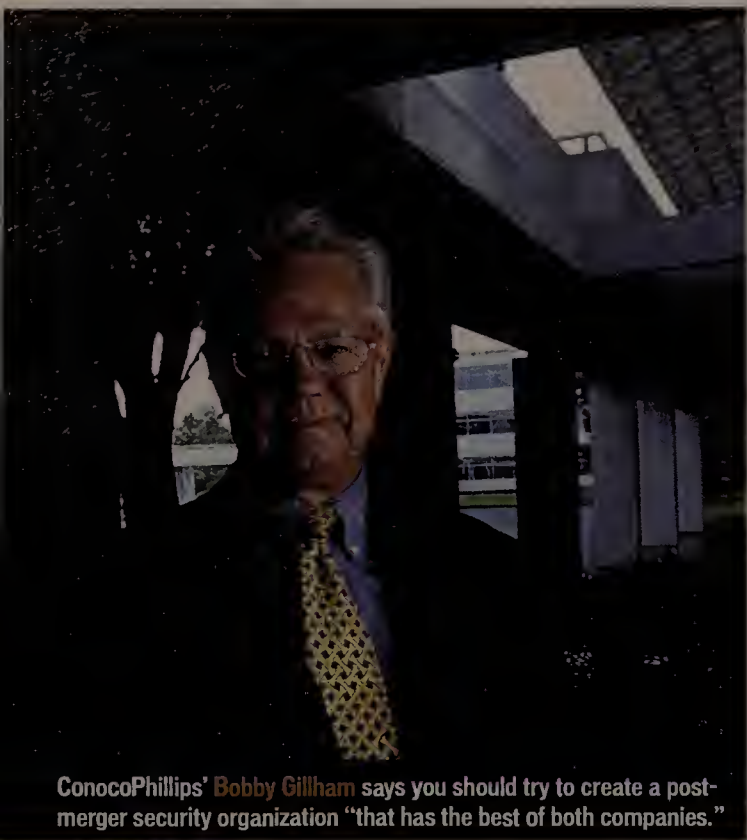
email system integrity. With the ability to process up to 120,000 emails per hour, and the intelligence to control the content that enters, flows through and leaves your network, you can spend more time doing things that matter — like getting to know your colleagues! If you'd like more time to chat, visit [www.nokia.com/get\\_a\\_life/americas](http://www.nokia.com/get_a_life/americas)

# NOKIA

CONNECTING PEOPLE

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ConocoPhillips' Bobby Gillham says you should try to create a post-merger security organization "that has the best of both companies."

FAM FRANCIS

deal is signed and afterward, when security technologies and policies have to be integrated. The following are some practical tips for ensuring that data, networks and systems remain as secure as possible during the often turbulent times that accompany a merger or acquisition.

**TIP 17** Perform due diligence on security well before the merger begins. The chief security officer or other senior security manager should be as involved in the process of evaluating potential merger or acquisition targets as finance, human resources and other executives are. Analyze the security policies and technologies at the other company, and

determine how vulnerable it is.

Also, determine whether the company educates employees about security in general and about things such as preventing the spread of viruses. Conduct a penetration test of the target company's network, and interview managers and staffers to gauge the prevailing attitude about security and protecting data and intellectual assets.

"Spend a lot of time learning about the company and its culture, where it does business, whether security [management] is centralized or decentralized, and how the company values security," says Bobby Gillham, manager of global security at ConocoPhillips in

Houston, who headed security for Conoco during its 2002 merger with Phillips Petroleum. "Work closely with the other company's security manager to understand their security organization and its role in the organization."

**TIP 18** Assess the security practices and vulnerabilities of suppliers and other business partners that work closely with the merger or acquisition target, says Laura Koetzle, an analyst at Forrester Research Inc. Do the trading partners have adequate security in place for e-commerce, online procurement and Web collaboration?

**TIP 19** Remember that a merger can always fall through because of regulatory restrictions, stockholder disapproval or other reasons. "Companies have to be careful about releasing [security] information to the other organization, because if the merger is halted, there's no way you can get them to 'unknow' those things you've told them," says Koetzle. This is particularly critical if the merger partner is a competitor. "You can disclose the level of security you provide, but don't hand over all the keys to the kingdom in the early stages of a merger."

**TIP 20** Anticipate "social engineering" and other security threats from disgruntled employees at both of the companies involved. While experts say bad behavior is usually the exception — most people are more concerned about finding a new job than harming the company if they believe they're going to be laid off — it makes sense to be ready for anything. As soon as an employee has been notified about a layoff, cut off access to all critical services and applications. The IT staff should be trained and prepared to shut off employees' network access as quickly as necessary.

"You need to pay particular attention to protecting against people walking out with proprietary information," Gillham says. "Sometimes people take

things not to steal, but to show prospective employers the work they've done. You have to limit access to proprietary systems for those people you know are being downsized."

**TIP 21** During the integration/transition phase, get the two companies' security groups working together as soon as possible. Begin to identify which security technologies should be retained and which should be dropped, based on the security needs of the new organization. "There may be an opportunity to create [a new] security organization that has the best of both companies," says Gillham. "Compare the security expertise of both companies and look for opportunities for synergy in the integration process."

**TIP 22** Be sure to address how to handle secure communications, particularly if the companies are using different types of e-mail or virtual private networks for remote access. "That can be a hurdle; if the systems are not compatible, people may not be able to communicate with each other," says Nicholas Percoco, associate partner at Ambiron LLC, an information security advisory firm in Chicago. It may be necessary to change security technologies at one company to guarantee secure communications. ▮

#### SECURITY DISASTERS

**TIP 23** If the target company turns out to have security problems and it's too late to get out of the deal, spend whatever it takes to quickly bring the partners up to snuff, through new technology or upgrades of old products. Don't sidestep the problem by creating a security committee, establishing a security policy or creating a security team.

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With merger and acquisition activity on the rise, here's how to protect your company's assets and exploit the opportunity to bolster the security of the combined business. By Bob Violino

# Strengthen Security During Mergers



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# Thwart Insider Abuse

Here's how to detect and stop attacks by clueless or disgruntled employees. By Dan Verton

IT HASN'T BEEN GETTING a lot of media attention lately, but the threat to corporate security and intellectual property from insiders remains one of the biggest challenges facing IT departments today.

According to the most recent survey by the American Society for Industrial Security in Alexandria, Va., current and former employees and on-site contractors with authorized access to facilities and networks continue to pose the most significant risk to intellectual property such as research data, customer files and financial information.

What follows is a list of the best tips — from a variety of IT security professionals — on how to detect and prevent insider abuse of computer and network resources. Experts say that all security programs should focus on people, process and technology, so we've broken the list into those three categories.

## People

**TIP 24** Require new hires to go through a security orientation. Have employees review and sign a policy concerning the acceptable use of company IT resources. In addition, an orientation program should include a review of the threats; a specific list of do's and don'ts to protect corporate information, passwords and physical security; and what to do (and whom to contact) if an employee discovers a security violation.

## OFFICE PERIPHERALS

**TIP 25** Don't overlook the sensitive data on common office peripherals, such as copiers and printers. When these products are used, the memory of that use remains in the machine, sometimes for years. There are products available to address this issue, such as "digital shredder" software, which erases data from the machine after each use.

**TIP 26** Establish a corporate "neighborhood watch" program. Set up a reporting structure that is able to detect irregularities and prevent social engineering.

**TIP 27** Check the backgrounds of all employees who handle sensitive data.

**TIP 28** Make sure the passwords for systems administrators have the strongest level of authentication and are given to the smallest potential audience.

**TIP 29** Require systems administrators to take two consecutive weeks of vacation annually — similar to the vacation requirements for senior bank managers — so that fraudulent activities or other improprieties can surface while they're gone.

**TIP 30** Develop a policy-setting "security council" that has

an executive sponsor from each major department, such as human resources, finance, IT and marketing.

**TIP 31** Integrate IT procedures and HR procedures so that system access is tied to employee (and consultant) hiring and departures.

## Process

**TIP 32** Establish a reliable system for assigning access to company data. Make sure the system can disable such access immediately if a major lay-off occurs.

**TIP 33** Determine, based on job function, seniority and other roles, who needs to have access to which company resources and why.

**TIP 34** Require employees to sign a nondisclosure contract on their date of hire so they know what type of information is considered proprietary and what the consequences will be if they share it without authorization.

**TIP 35** Keep an inventory of your IT assets. Know the type and version of every operating system and application you use, as well as the number of computers and networking devices you have and all of the firewall types and rules.

**TIP 36** Conduct security audits on all systems every 24 hours to ensure that the systems are secured and haven't regressed or been rendered vulnerable.

**TIP 37** Make the ability to support your company's information access policy one of the criteria for buying new software or systems.

**TIP 38** Evaluate the security of your business partners and vendors.

## Technology

**TIP 39** Identify dormant IDs or orphaned accounts. Install or create a system for actively checking for and deleting out-of-date IDs and accounts as well as inactive users.

**TIP 40** Have an automated system for resetting passwords on a regular basis.

**TIP 41** Make sure that the accounts belonging to laid-off employees aren't simply deleted. Instead, incor-

## Yikes!

*A survey of managers and employees with access to sensitive customer information found the following:*

- **66%** said their co-workers, not hackers, pose the greatest risk to consumer privacy; only 10% said hackers are the greatest threat.
- **62%** reported incidents at work that put customer data at risk for identity theft.
- **46%** said it would be "easy," "very easy" or "extremely easy" for workers to remove sensitive data from the corporate database.
- **32%** said they're unaware of internal company policies to protect customer data.
- **28%** said their company does not have a written security policy or they didn't know if it has one.

Base: Survey of 500 U.S. workers and managers who handle sensitive customer information at work.

SOURCE: HARRIS INTERACTIVE INC., ROCHESTER, N.Y., MAY 2003

porate a suspend feature in your provisioning process that prevents outside access but enables the IT department to search for key data in the account.

**TIP 42** Convert physical access-control devices from electronic systems to network-enabled devices so that physical access events can be correlated with network events and file-access attempts. For example, integrate your building-access card reader with your IT network so that an event like a person entering a building late at night can be correlated with any cybersecurity violations that take place around the same time.

**TIP 43** Collect historical data for individual employees regarding network activity and file-access attempts and then employ a formula to calculate a risk factor for each event. Rank the risk factors and sort by employee to identify the riskiest employees or those who need remedial security training. ▶

## MORE TIPS ONLINE

Need more? We've got additional advice on preventing insider abuse and social engineering:

QuickLink 39683  
www.computerworld.com





MARIA RENDON

**A** FLURRY of federal and state regulations and international laws is pushing data privacy management to the top of the business agenda. Companies that fail to comply with those laws will increasingly be exposing themselves to legal liability from their customers and from regulators.

Laws such as the Health Insurance Portability and Accountability Act and the USA Patriot Act have already established information privacy rules for companies in the health care and financial services industries. New this month is California's SB 1386 identity protection bill, and coming down the pike are other state and federal versions of the law. International rules such as those covering European Union nations and Canada are also forcing U.S. companies to confront privacy issues.

For a lot of companies, complying with such regulations will require a substantial effort from both a technology standpoint and a process standpoint, says Paul Paez, president of Privastaff Inc., a San Jose-based privacy consultancy.

A step-by-step process for protecting your company by guarding customer privacy.  
By Jaikumar Vijayan

# Protect Privacy, Step by Step

Even so, the laws make it vitally important for companies to develop privacy policies, practices and procedures, says Charlene Brownlee, an attorney at Fulbright & Jaworski LLC in Austin. "A company's liability will be measured against what steps it took to protect data privacy," Brownlee says. "You are going to need to show what you did to be in compliance with industry standards."

That means clearly articulating a privacy policy and then taking the following technology and process measures to implement and manage it.

**TIP 44** Assess what steps need to be taken in order to comply with privacy regulations relating to your business and with your company's privacy policies.

**TIP 45** Audit how and why personal data is collected, used, shared, accessed, stored and protected.

**TIP 46** Look at the manual and automated processes that are involved in this cycle and figure out which gaps need to be filled.

As obvious as these measures may seem, this kind of gap analysis is a crucial first step to any privacy management effort, Brownlee says. Otherwise, there's simply no telling where or how personal information is embedded within your enterprise and how it needs to be protected.

**TIP 47** Control who touches the data and why, says Arshad Noor, CEO of StrongAuth Inc., a Cupertino, Calif.-based identification management firm. Have formal processes for restricting physical and virtual access to confidential customer or employee data.

**TIP 48** Secure the manual and automated processes by which data is copied, shared, backed up and stored. For instance, limit the number of people who have physical access to

backup tapes or other storage media containing confidential information. Have strong user-authentication and access-control technologies to ensure that only authorized people have access to confidential information, Noor suggests.

**TIP 49** Understand what permissions are associated with personal data used by applications – especially ones such as CRM, ERP and supply chain, says Paez. A lot of the customer data may have been collected in a manner not consistent with new regulations or the company's privacy policy, he says. See whether the permissions need to be updated and new permission fields need to be added to these applications. Investigate and implement processes for tracking and storing user permissions and for seeing that the data is used in a consistent manner across all applications, Paez says.

## PREPARE TO BE HACKED

**TIP 50** Encrypt all confidential data when it's being transmitted and when it's at rest on storage media. That way, even if it gets hacked, the information is secure. Encryption might also provide some legal cover for companies that get hacked. Businesses that encrypt data are specifically exempt from California's SB 1386, for instance. It may also be a good idea to consider storing a user's name separately from other pieces of identifying information such as a Social Security or driver's license number.

**TIP 51** Collect personal information only if it's absolutely needed, and don't store it for longer than you need it, Brownlee advises. Examine whether storing personally identifiable information, such as Social Security and driver's license numbers, is really key to your business.

If not, are there alternatives to collecting and storing such information? The more personal data you collect, the greater your liability exposure, according to Brownlee.

**TIP 52** Implement good configuration management, asset management and change management processes, Noor says. Make sure that the hardware, operating systems and networks that process personal data are hardened and locked down. Shut down all unnecessary functions, configuration settings and permission fields, he says. Stick the servers behind firewalls. ▀



**W**HEN YOU SAY the words *instant messaging* and *security* to many IT executives, you might as well be referring to oil and water. Some CIOs have simply banned the use of this collaboration tool in their companies, citing it as a gaping hole through which viruses, hackers and corporate spies can enter and out of which company secrets, libelous statements and unaudited communications can flow.

These naysayers have a point — Gartner Inc. in Stamford, Conn., has identified IM as one of the top 11 security issues for 2003. “IM, by its very nature, punches a hole in the firewall, and that opens up the possibility of inviting in a dangerous worm,” says Douglas Schweitzer, a Gartner analyst.

The problem is, IM originated as a free download for consumers and wasn’t designed with corporate security in mind. Instant messages bypass virus scanners, and users can inadvertently download files containing malicious code. And because of IM’s casual nature, users may be less than professional in their communications. Meanwhile, these messages go uncaptured by any corporate database, making them unauditable.

But officially sanctioned or not, IM use is nearly unstoppable — and in some instances, it’s a critical business tool. Last year, there were 80 million IM users in the U.S., and 25 million of those were business users, according to The Yankee Group in Boston. Fortunately, there are ways to plug many IM

security gaps. Here are some tips on how to tame the wild world of IM:

**TIP 53** **Keep IM within the firewall.** Some companies, such as Terra Nova Trading LLC in Chicago, want their employees to have IM — just not over the public network. So Kevin Ott, vice president of technology at the brokerage, installed an IM system called E/pop from WiredRed Software Corp. in San Diego.

E/pop and similar systems, such as IBM Lotus Software Group’s Same-time, Jabber Inc.’s Messenger and even America Online Inc.’s Enterprise AIM, route instant messages locally, so they never traverse the public network.

These systems also offer audit and reporting capabilities, as well as features such as virus scanning, directory integration with other e-mail systems, message encryption and user authentication. “It’s a completely closed system, and we can audit the transcripts and put them in a database,” Ott says.

**TIP 54** **Install a gateway product.** Other companies, such as brokerage firm Craig-Hallum Capital Group LLC in Minneapolis, rely on IM to communicate with business partners. That’s why it turned to an IM gateway product from FaceTime Communications Inc. in Foster City, Calif. Other gateway vendors include Akonix Systems Inc., IMlogic Inc. and AOL.

These systems can either route instant messages on the internal corporate network for employee-to-employee communications or interface with consumer IM clients to send messages to outside parties over the Internet.

However, a proxy server sits between the IM clients on both sides of the firewall and scans for viruses, filters content, periodically attaches disclaimers to messages and sends all messages to a database for archiving.

These systems also allow IT to block file transfers, authenticate users and control who’s allowed to use IM. Some gateway products allow IM conversations to be monitored in real time and even interrupt those that break corporate policies. More common, however, is after-the-fact monitoring. “We do a postreview, because IM conversations are supposed to happen in real time,”

says John Threadgill, managing director of IT at Morgan Keegan & Co. in Memphis. “The system checks for keywords, and if one appears, the IM is flagged and a manager is notified.”

#### KEYWORDS

**TIP 55** **Filter content for sensitive keywords.** Healthcare companies might block or flag messages with sensitive patient information, whereas financial firms look for phrases like “guaranteed return.” All companies might disallow certain number patterns, such as those of Social Security numbers.

**TIP 56** **Encrypt messages.** Even with a gateway product, there is still a vulnerability: “What happens to the message when it’s out on the Internet?” asks IDC analyst Robert Mahowold. Consumer IM systems store instant messages on their servers in clear text, which anyone, including hackers, can read.

Encryption is one way to bridge this security gap, although very few companies actually use it because of its complexity and the fact that many products work only if both parties use the same encryption software. Another approach, offered by AOL and VeriSign Inc., is to certify instant messages sent to partners. However, Mahowold says, “it’s a payment level on top of paying for the IM client and server.”

**TIP 57** **Hammer home your IM policy.** After closing what gaps you can with technology, the best safety net is to educate users on IM’s security holes. One way to do this with an IM gateway is to have the system send periodic reminders of IM policies.

At The Weather Channel Interactive Inc. in Atlanta, which uses Akonix’s L7 system, salespeople who use consumer IM systems get a daily pop-up reminder, says John Penrod, a network architect there. “We want them to keep in mind that we’re not preventing them from putting a dollar mark into an IM but that it would be preferable for them to think about whether that communication should be done in a more secure way,” he says. ▀

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#### MORE TIPS ONLINE

Companies share more advice on locking down instant messaging:

QuickLink 39700  
[www.computerworld.com](http://www.computerworld.com)



It may not be sanctioned by IT, but with 25 million business users, instant messaging is a security problem you can’t ignore. Here are some tips for locking it down. By Mary Brandel

# Plug IM's Security Gaps

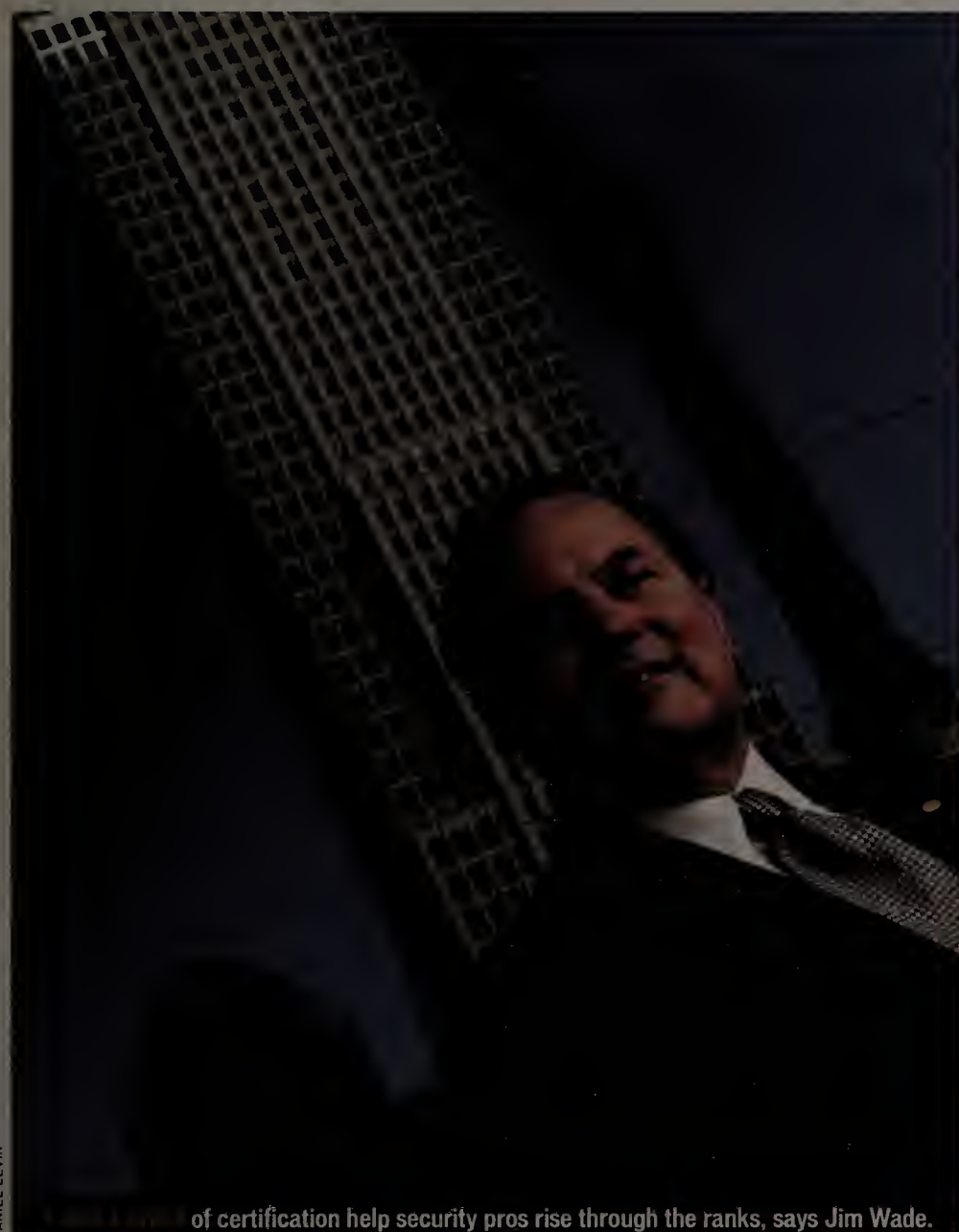












of certification help security pros rise through the ranks, says Jim Wade.

# Boost Your Security Career

Tips and strategies for developing a career in information security.

By Amy Helen Johnson

## CAREERS

INFORMATION security specialists have it a little better

than other IT professionals in today's tight job market, but not by much. That's according to Jim Wade, senior vice president and chief information security officer at financial services firm KeyCorp in Cleveland.

The pay is slightly higher, Wade says — maybe 10% more than for other IT positions at comparable levels — and a high-quality candidate, especially in the senior-level ranks, should have no problem finding interested employers.

To become a top-ranked information security specialist, you have to make the right moves. Here are some tips to

help you manage your information security career.

**TIP 58** Get the right certifications, says Wade. There are three types: vendor- and technology-specific, skills-based, and knowledge-based. You'll likely need all three at different places in your career.

When you're first starting, he says, knowledge of a specific technology, like firewalls, is good for operations jobs. The next step, demonstrating a skill such as intrusion-detection expertise, earns you entry into specific projects. When you want to move into management roles, a broad-based certification, like Certified Information Systems Security Professional (CISSP) or Certified Information Security Auditor, is the way to go. (Wade is also president of International Information Systems Security Certification Consortium Inc., a professional standards group for the security industry and the body that oversees the CISSP test.)

The better certifications account for the fact that information security is a continual learning process, says Kerry Anderson, vice president and information security officer at Boston-based FMR Corp., the parent company of Fidelity Investments. So look for ones that require continuing education credits to maintain your status. They indicate that you stay up to date in this changing field. Ones that require you to demonstrate on-the-job experience are also more valuable to employers, she says.

**TIP 59** Consider earning a graduate degree in information security, says Wade. Look for programs that combine technical training with business strategy courses; today's security professional has to be as savvy about corporate financial goals as he is about Unix security holes. Two places to check out: Purdue University and Idaho State University.

If you're looking for more academic programs, Anderson suggests researching the universities recognized by the National Security Agency as Centers of Academic Excellence in Information Assurance Education. That list is available at [www.nsa.gov](http://www.nsa.gov).

**TIP 60** Increase your disaster recovery and risk management skills, says Kenneth Davis, director of information security at Allstate Insurance Co. in Northbrook, Ill. People with disaster recovery skills are vital to businesses because they keep operations running in an emergency. A need

for people with risk management expertise arises out of recent government regulations that require businesses such as financial services firms and health care providers to protect personal data.

**TIP 61** Build a home laboratory, says Tom Baltis, manager of risk management at Allstate. Readily available freeware or shareware versions of many commonly used technologies put such a lab within the means of most people, he says. This gives IT professionals the opportunity to acquire knowledge of the underlying theories and uses of security tools — skills that transfer regardless of the actual product used.

**TIP 62** Give something back to the information security community, says Wade. The best way to do that, he says, is to work with standards bodies and professional organizations to develop best practices and enhance the common body of knowledge.

**TIP 63** Get on a project working with strategic partners, such as vendors, service providers and customers, Wade says. This gives you valuable experience in an area of growing importance: providing adequate levels of security when the risks arise from connecting to systems outside your infrastructure.

**TIP 64** Consider an internship in IT security if you're still in school, says Wade. Not only will you get practical, real-world experience, but you'll also make valuable contacts for your postgraduation job search.

Information security jobs are everywhere — from Fortune 500 companies to mom-and-pop businesses — and in every state, says Davis. That means you have a good chance of being able to find work where you live. And if you're willing to relocate, the chances of finding your dream job increase. ▀

## ASK UNCLE SAM

**TIP 65** Take a second look at government jobs, says Wade. After losing many good people to higher salaries and better opportunities in industry, the U.S. government is adapting its traditionally rigid employment practices to recruit and retain more information security professionals.

Johnson is a Computerworld contributing writer. You can reach her at [amy-helen@pobox.com](mailto:amy-helen@pobox.com).



# The Almanac

An eclectic collection of research and resources. By Mitch Betts

## Spyware Bots: They're Everywhere

Some of them are innocuous, just tracking Web site visits. But "spyware bots" — software modules deposited onto a PC without the user's knowledge — are the truest form of Trojan horses, says Jim Hurley, an analyst at Aberdeen Group Inc.

Some of these bots are treacherous, he says, capable of hijacking the browser, capturing keystrokes, sniffing passwords, collecting confidential data, piggybacking on telecommunications services and allowing outsiders to take control of the PC.

Spyware makes its way into the bowels of the PC when new software packages are installed or upgraded. In addition, e-mail and Web portals contain self-installing spyware agents, Hurley explains.

Few people know that their PC is riddled with spyware bots, which communicate the information they collect to Web sites. Neither antivirus software nor firewalls can stop them.

"Spyware is now on every PC in every home, corporation and government agency throughout the world," Hurley asserts. His recommendation: Type *spyware* in a Web search engine and get one of the spyware detection-and-elimination tools listed there to find out what sort of spies are lurking in your PC.



SANITIZING hard drives is rarely done.

## Resold Hard Drives Yield Private Data

MIT researchers have confirmed that many resold and discarded computers — even those with "erased" hard disks — harbor confidential data such as credit card numbers and medical records that can be readily recovered.

Scavenging through the data left on 158 secondhand disk drives, the researchers found more than 5,000 credit card numbers, as well as detailed personal and corporate records. One disk apparently came from an automated teller machine in Illinois and had a year's worth of financial transactions.

Many of the disk drives had been reformatted, or the My Documents folder had been deleted, but that didn't make the data unreadable. In all, only 12 drives were properly sanitized, the researchers reported in the journal *IEEE Security and Privacy*.

## Patent Watch

■ A method for detecting security vulnerabilities in a Web application. Most scanners look for vulnerabilities at the network level, but this one probes for security weaknesses at the application level. — U.S. Patent No. 6,584,569, issued June 24. **Inventors:** Eran Reshef, Yuval El-Hanany, Gil Raanan and Tom

Tsarfati, for Sanctum Ltd. in Herzelia, Israel.

■ A "digital persona" for providing access to personal information. An information server stores a person's identifying information and privacy preferences. If another computer requests the personal data, the digital persona server compares the request with the privacy preferences and either approves the release of the data or denies the request if the conditions are unacceptable. — U.S. Patent No. 6,581,059, issued June 17. **Inventors:** Robert Carl Barrett and Paul Philip Maglio, for IBM.

## Unisys Suite Detects Criminal Patterns

Unisys Corp. recently unveiled the Active Risk Monitoring System (ARMS), software that may help banks spot patterns of seemingly unrelated events that add up to potential fraud, identity theft or money laundering.

Actimize Ltd. in New York provides the underlying analytics technology, which monitors transactions in real time, identifies patterns of suspicious behavior and flags transactions according to predefined criteria.

For example, suppose a criminal uses 30 stolen ATM cards in succession to withdraw \$500 each time. None of those transactions taken alone would raise a flag, but ARMS can detect a change in the rate of transactions during a certain time period or spot the increased number of cards that have never been used at that ATM before, Unisys says.

— Paul Roberts, IDG News Service

## Financial Security

The state of IT security at 80 financial institutions around the world

■ Security is about 6% to 8% of the IT budget in developed countries

■ 63% currently have or plan to establish in the next two years the position of chief security officer or chief information security officer

■ 40% have a chief privacy officer, and another 6% intend to appoint one within the next two years

■ 39% acknowledged that their systems had been compromised in some way within the past year

■ 24% have a cyber risk strategy, and another 5% intend to develop such coverage.

Antivirus 96%

Virtual private networks 86

Intrusion-detection systems

Content filtering/monitoring

Public-key infrastructure

Smart cards 43%

Biometrics 19%

SOURCE: 2003 GLOBAL SECURITY SURVEY BY DELOITTE TOUCHE TOMHATSU, NEW YORK, JUNE 2003

## MORE RESOURCES

Go to our Security Knowledge Center for tutorials and research links:

QuickLink k1600  
www.computerworld.com

## Managing Wireless Risks

Financial institutions around the world have taken the following steps:

49%

have instituted security policies for wireless usage.

41%

have scanned their networks to identify rogue wireless networks.

29%

have issued guidelines to employees for safer use of Wi-Fi.

Base: Survey of corporate security and IT managers at 80 financial services companies worldwide

“Security spending can't continue to consume ever-increasing portions of the IT budget. No enterprise can afford to spend more on insurance than on new product development. By 2005, security groups that can't demonstrate security effectiveness metrics will experience flat to declining IT security funding.”

JOHN PESCATORE, ANALYST, GARTNER INC.



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# Buffer Overflow

## DEFINITION

A **buffer overflow** occurs when a computer program attempts to stuff more data into a buffer (a defined temporary storage area) than it can hold. The excess data bits then overwrite valid data and can even be interpreted as program code and executed.

BY RUSSELL KAY

**C**AN THERE be too much of a good thing? That's certainly true for computer input. Do an Internet search on the term *buffer overflow*, and you'll come up with hundreds of thousands of links, most related to security.

In the National Institute of Standards and Technology's ICAT index of computer vulnerabilities (<http://icat.nist.gov>), six of the top 10 involve buffer overflows. In 1999, the now-defunct research firm Hurwitz Group Inc. named buffer overflow the No. 1 computer vulnerability. Four years later, it's still a major problem.

If you've ever poured a gallon of water into a pint-size pot, you know what *overflow* means — water spills all around.

Inside a computer, something similar happens if you try to store too much data in a space designed for less. Input normally goes into a temporary storage area, called a buffer, whose length is defined in the program or the operating system.

Ideally, programs check data length and won't let you input an overlong data string. But most programs assume that data will always fit into the space assigned to it. Operating systems use buffers called stacks, where data is stored temporarily between operations. These, too, can overflow.

When a too-long data string goes into the buffer, any ex-

cess is written into the area of memory immediately following that reserved for the buffer — which might be another data storage buffer, a pointer to the next instruction or another program's output area. Whatever is there is overwritten and destroyed.

That in itself is a problem. Just trashing a piece of data or set of instructions might cause a program or the operating system to crash. But much worse could happen. The extra bits might be interpreted as instructions and ex-

ecuted; they could do almost anything and would execute at the level of privilege (which could be root, the highest level) assigned to that particular memory area.

## Bad Programming

Buffer overflow results from a well-known, easily understood programming error. If a program doesn't check for overflow on each character and stop accepting data when its buffer is filled, a potential buffer overflow is waiting to happen. However, such checking has been regarded as unproductive overhead — when computers were less powerful and had less memory, there was some justification for not making such checks. Moore's Law has removed that excuse, but we're still running a lot of code written 10 or 20 years ago, even inside current releases of major applications.

Some programming languages are immune to buffer overflow: Perl automatically

resizes arrays, and Ada95 detects and prevents buffer overflows. However, C — the most widely used programming language today — has no built-in bounds checking, and C programs often write past the end of a character array.

Also, the standard C library has many functions for copying or appending strings that do no boundary checking. C++ is slightly better but can still create buffer overflows.

## Cracker's Choice

Buffer overflow has become one of the preferred attack methods for writers of viruses and Trojan horse programs. Crackers are adept at finding programs where they can overfill buffers and trigger specific actions running under root privilege — say, telling the computer to damage files, change data, disclose sensitive information or create a trap-door access point.

In July 2000, it was discovered that Microsoft Outlook and Outlook Express let attackers compromise target computers simply by sending e-mail messages. No one even had to open a message; as soon as the user downloaded the message, message-header routines went into action — with unchecked buffers that could overflow and trigger code execution. Microsoft has since created a patch that eliminates the vulnerability. ■

Kay is a Computerworld contributing writer in Worcester, Mass. Contact him at [russkay@charter.net](mailto:russkay@charter.net).

## EXPLOITING A BUFFER OVERFLOW

### Anatomy of an Attack

Here's a simple example showing how a buffer overflow works and how it might be exploited. First, consider this program:

```
int i;
void function(void)
{
    char buffer[240]; // create a buffer for (i=0; i<512; i++) //
    iterate 512 times buffer[i]='A'; // copy the buffer A's
}
```

The following is what happens when this function is executed:

- 1) Our function is using a buffer 240 bytes long, which happens to be located at memory address 00000077.
 

Buffer address (8 bytes)	00000077
Buffer contents (240 bytes)	[blank]
Old base pointer (8 bytes)	12345678
Return instruction pointer (8 bytes)	00410000
- 2) As it executes, the function begins to fill the buffer with A's.
 

Buffer address (8 bytes)	00000077
Buffer contents (240 bytes)	AAAAAAAAAAAAAAAAAAAA . . .
Old base pointer (8 bytes)	12345678
Return instruction pointer (8 bytes)	00401000
- 3) After 240 bytes, the buffer is full. All subsequent bytes overflow into the next memory area, overwriting the old base pointer and the return instruction pointer.
 

Buffer address (8 bytes)	00000077
Buffer contents (240 bytes)	AAAAAAAAAAAAAAAAAAAA . . .
Old base pointer (8 bytes)	AAAAAAAA
Return instruction pointer (8 bytes)	AAAAAAAA
- 4) Now suppose that instead of just writing A's, the function inserts malicious code.
 

Buffer address (8 bytes)	00000077
Buffer contents (240 bytes)	This is evil code. . . .
Old base pointer (8 bytes)	12345678
Return instruction pointer (8 bytes)	40100000
- 5) After the buffer is filled with the malicious code, the old base pointer is overwritten.
 

Buffer address (8 bytes)	00000077
Buffer contents (240 bytes)	This is evil code. . . .
Old base pointer (8 bytes)	xxxxxxx
Return instruction pointer (8 bytes)	00401000
- 6) Then the return instruction pointer is rewritten, not with random values but with the address of the buffer itself, which now contains malicious code. (The address can usually be determined by trial-and-error experimentation.)
 

Buffer address (8 bytes)	00000077
Buffer contents (240 bytes)	This is evil code. . . .
Old base pointer (8 bytes)	xxxxxxx
Return instruction pointer (8 bytes)	00000077
- 7) After the buffer is filled, the program will go to the location referenced by the instruction pointer and thus begin to execute the malicious code.

## ONLINE RESOURCES

For a listing of online resources related to buffer overflows, visit our Web site:

QuickLink 39498  
[www.computerworld.com](http://www.computerworld.com)

Are there technologies or issues you'd like to learn about in QuickStudy? Send your ideas to [quickstudy@computerworld.com](mailto:quickstudy@computerworld.com)

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# The Next Chapter

**Predictions:** A Web services security breach will wreck the supply chain. And stolen fingerprints or eye scans will thwart biometric systems.

## ■ BYE-BYE INCOMPETENTS

The fakers, charlatans and incompetents will be purged from the IT security industry. In three years, 40% of the current gaggle of alleged security professionals will leave the industry — some to other professions, many to prison for egregious misrepresentation of their skills. By that time, the Department of Homeland Security will have mandated that all IT security professionals must pass a skills certification test run by the U.S. military academies.

■ *Thornton May, management consultant and futurist, Biddeford, Maine*

## ■ XML CATASTROPHE

In the next two years, there will be a major XML Web services security breach. The consequences will be much more severe than the defaced Web sites and stolen credit cards that caused mostly embarrassment in the early days of e-commerce. Instead, automated production lines will grind to a halt, company bank accounts will be emptied, 100-company-long supply chains will break, and the most proprietary corporate data may be disclosed.

■ *Eugene Kuznetsov, chairman and chief technology officer, DataPower Technology Inc., Cambridge, Mass.*

## ■ ATTACKS GET SPEEDIER

As attacks grow more professional in nature, we'll see an even greater increase in the speed of threats. For instance, "flash worms" would operate under the premise that a determined hacker could have obtained a list of all (or almost all) of the servers open to

the Internet in advance of the release of the worm. Such an attack could infect all vulnerable servers on the Internet in less than 30 seconds. Protecting against these threats will require new, proactive technologies, including behavior blocking, anomaly detection and new forms of heuristics.

■ *Rob Clyde, CTO, Symantec Corp., Cupertino, Calif.*

## ■ OFFSHORE TERRORISTS

Next year, a "sleeping cell" terrorist group will infiltrate the offshore programming industry and be identified as the cause of a widespread worm that will have been injected in the code of a widely used software product.

■ *Tari Schreider, director of the security practice, Extreme Logic Inc., Atlanta*

## ■ NEW ORGANIZATIONAL CHART

Public and private companies, in large numbers, will merge physical and data security. They'll unify these two independent groups on the organizational chart and convert physical access-control systems from stand-alone systems to network-enabled systems that convert physical access activity into network data. This data about physical access will be correlated with IT activity reports to provide early detection and warning of security breaches.

■ *Joel Rakow, partner, Tatum Partners, Los Angeles*

## ■ SURGICAL STRIKES

Three or four years ago, hackers were taking a haphazard, shotgun approach to Internet attacks, but now they're us-

ing their tools to penetrate very specific and lucrative targets, especially enterprise networks containing valuable intellectual property. These highly targeted attacks are on the rise, each one more intelligent and harmful than the last. By 2005, targeted attacks will account for more than 75% of corporate financial losses from IT security breaches.

In the next two years, companies will need to build much stronger and more intelligent defenses around every network endpoint touching sensitive information, instead of depending on general perimeter security.

■ *Gregor Freund, CEO, Zone Labs Inc., San Francisco*

## ■ HORSES AND LOGGERS THREAT

By the end of 2003, Trojan horses and keystroke loggers will overtake viruses as the greatest threat to PC users. We'll see countless malicious attacks each month — and most will initially go undetected, causing companies to lose millions of dollars. This problem will be made worse by the proliferation of wireless laptops and other mobile devices, which provide hackers with a back door for infiltrating enterprise networks.

■ *Pete Selda, CEO, WholeSecurity Inc., Austin*

## ■ STOLEN FINGERPRINTS

Biometrics is perceived as the ultimate in security, but what does somebody do once their bioprint is stolen? Within three years, hackers will have all

sorts of scanned fingerprints, retinal patterns, etc., and these will be used to bypass biometric network security. When your credit card is stolen, you phone Visa and have a new card issued. When your bioprint is stolen, do you call God and ask for a new set of fingerprints or eyes?

■ *Malcolm MacTaggart, president and CEO, CryptoCard Corp., Kanata, Ontario*

## ■ OUTDATED SIGNATURES

Behavioral-anomaly-based technology will replace traditional signature-based methods to prevent damage from viruses, worms and Trojan horses over the next three to five years.

■ *Jeff Platon, senior director of security marketing, Cisco Systems Inc.*

## ■ FIRING THE CLUELESS


P.T. Barnum knew that a sucker was born every minute. Since most cyber risk is directly attributable to insider activity, including the social engineering of digital dullards, a renewed focus on background checks is necessary. The chief security officer of the future, working with the HR chief, is going to find and fire digital "suckers" before their dimness puts the enterprise at risk.

■ *Thornton May*

## MORE PREDICTIONS

Expect to see a U.S. Cyber Corps, secure e-mail and tougher federal security regulations:

QuickLink 39538  
www.computerworld.com



## Little Blue

The SmartPrint TruBlue, from Labcal Technologies Inc. in Quebec City, combines fingerprint biometric technology with a smart-card authentication reader. The goal of this hybrid device is to eliminate those pesky, complicated passwords. It plugs into a computer's Universal Serial Bus port.

— Mitch Betts



# Time Is Running Out!

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**Senior Software Engineer**  
Develop complex, multi-tiered applications, especially Internet applications & to design & troubleshoot at all stages of development. Interact w/customer to understand & deal w/any potential complications or special requirements. In developing application, must formulate & develop application design using object oriented analysis & design techniques, develop & deploy design under operating systems UNIX or NT, as well as conduct application engineering & assist customers in writing applications using assorted tools. Position requires extensive amount of travel in N. American region. Rqrs: MS in CS, Engineering, or related or equivalent. A BS w/5 years of post-baccalaureate progressive experience will substitute for a Master's degree. Requires extensive knowledge in server side Java or C++; extensive knowledge in developing in UNIX or NT; extensive knowledge in development using object oriented analysis & design techniques; knowledge of J2EE standards, including EJB, JSP, Servlet Programming, JNDI, & JDBC; knowledge of e-commerce projects; knowledge in XML; & knowledge of directory services. 8:30a.-5:30p. 40 hrs/wk. \$115,000/yr. Submit 2 resumes to Case # 200200417, Labor Exchange Office, 19 Staniford St, 1st fl., Boston MA 02114.

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**Sr. Software Engineer (with Bachelors degree and 5 years experience)** - West Chester, OH. Job entails and requires experience in design and development of applications using, Oracle, Visual Basic, I2 Demand Planner, PL/SQL, Perl Script and Unix. Relocation within USA possible. Attractive compensation package. Send resume to Catherine Fanucchi, SDG Corporation, 65 Water Street Norwalk, CT 06854.

**BitsOfCode Software Systems, Inc. (Katy, TX)** is seeking System Analysts. 6 mon. exp. using C#, C++, C, Java, TIBCO, FIX, FiXML, XML/XSLT/DHTML, J2EE/Swing, TOPS Financial Modules, Reuters/Tibco Market Feeds, JRun, COM/DCOM/ActiveX, JNI, JDBC, Excel VBA, Oracle, SQL, Javelin Appia, B2B Fix, JBuilder and Weblogic. B.S. required. Send resume to 22523 Westbrook Cinco Ln, Katy, TX 77450. 888-423-4993(F)/281-693-2633(T). Attn: Joseph Koothrappally.

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**DBA:** Design/implement terabyte-size relational Informix db on HP-Unix, SUN Solaris & IBM-AIX; db structures/objects/logic design; RD-BMS backup/recovery strategy; tuning/security w/ Informix 4GL, VERITAS Netbackup, Shell scripts, C, and ESQ/C.

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Must design & develop complex enterprise/distributed systems for the Internet using Java, supporting technologies & tools; analyze software requirements to determine feasibility of design within time & cost constraints; assist in planning, development, & modification of any existing application; develop & direct software system testing procedures, programming & documentation; & consult with customer concerning issues of a software system. Rqrs: BS in CS, E, or related w/2 years software industry experience. Rqrs experience in Java Programming Language; real-world experience designing & building Multi-Tier enterprise applications, Object-oriented design, & relational databases; & experience w/either weblogic application server or IBM's websphere Application server. Good communication skills are a must. 10:00a.-6:00p. 40 hrs/wk. \$74,000/yr. Submit 2 resumes to Case # 200201855, Labor Exchange Office, 19 Staniford St, 1st fl., Boston MA 02114.

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**System Analyst wanted to analyze data processing problems for application to electronic data processing systems; analyze user requirements, procedures, and problems to automate or improve existing systems, and related duties.** BS in CS or in Electrical Eng. 2 yrs exp Required. Send resume to Advanced Control Systems Corp., 35 Corporate Park Dr., Pembroke, MA 02359.

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**Sr Software Engineer (Monrovia, MD)** for s/ware product co. Reqs: Bach degree in Comp Sci/Comp Eng or EE & 5 yrs exp in job offrd or relatd. Send resume to: Qovia Inc., 4937-D Green Valley Rd, Unit 4, Monrovia, MD 21770, attn: Lance C.

**Software Dev. Co. req. Software Engr.** Duties incl: Take an active role in the development and maintenance of Object oriented multi-threaded SCADA software. Software Engineer will develop software requirements specifications, functional specifications, software design documents and test documents. Design develop and implement ladder logic and device driver using MODBUS, SNP-X, IEC 870 protocol for PLC. Knowledge of GUI implementations is required for both the designing and debugging of code using VC++. Perform database design, develop, maintain and implement database scripts, stored procedure and triggers for SQL-Server and MS-ACCESS. On-site implementation of HMI software. Job to be performed at Fredenck, MD, and at various unanticipated client sites throughout the U.S. Resp. to IT Director, Engineering Systems Solutions, Inc. 5726 Industry Lane, Fredenck, MD 21704.

**Prog/Analysts to** - analyze, design, test client server/web appls with OOAD methodologies using Java, VB, EJB, Servlets, JScript, XML, HTML, Oracle, SQL, JDBC, Access, Weblogic, etc in Windows OS; analyze business processes, determine reqs, generate reports; document, maintain, debug, test, perform code optimization; OR - analyze, develop, maintain s/w appls using Oracle Appls, Oracle, PL/SQL, Dev 2000, etc under Windows/UNIX OS; conduct functional testing/debug; perform data conversions, customize Forms/Reports using Oracle Appls standards; document, maintain & update dev process. Require: BS or foreign equiv. in CS/Engg (any branch) or related field & 2yrs exp. in IT. High salary. Travel involved. F/T. Resume to: HR, Bahwan Cybertek Technologies, Inc., 209 West Central Street, Ste 312, Natick, MA 01760.

**PROGRAMMER ANALYSTS** for Mt. Prospect, IL office. Develop & maintain software applications using Oracle, SQL Server, Erwin, Linux, Sybase, XML, UML, Interwoven, Coolgen, ClearCase, ClearQuest, Plumtree, PVCS, UNIX. Bachelors Degree reqrd in Computers, Engineering, Math or related field of study + 2yrs of related exp. 40 hrs/wk; Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Magnum Technologies, Inc. 1000 Arbor Court, Mt. Prospect, IL 60056.

**Engineering Programmer** sought to convert engineering formulations into computer programs to be used for oil drilling equipment. Program and customize drilling rig systems to meet the clients' needs, and perform related duties. B.S. in Computer Science and experience required. Send resume to EMER International, Inc., 19424 Park Row, Suite 104, Houston, TX 77084.

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ComSpec International is looking for system/programmer analysts. Duties include design test data and test plan, use Uniface, Oracle, Access XP, Crystal Report. Qualified applicants must have BS with exp as software developer. Please contact R.Brender@comspec-intnl.com. EOE.

Corpus has multiple openings for IT professionals. Following skills preferred: Oracle, SQL, PL/SQL, COBOL, C/C++, VB, SAP, Java, XML, ERP, ASP, NT, XSL. Minimum BS degree. Traveling is required for some positions. Please send resumes to info@corpusinc.com. EOE.

Seeking qualified applicants for the following positions in Memphis, TN: Senior Systems Programmer. Devise procedures to solve complex systems and applications problems. Requirements: Bachelor's degree\* in computer science, MIS, engineering or related field plus 5 years of experience in systems programming. Experience with UNIX, C and logistics code development also required. \*Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Sibi George, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Manager of Customer Applications wanted by shipping and container co. in Tampa, FL. Must have a minimum 4 years exp. as a Computer Systems Analyst/Programmer Analyst or related occupation, with 4 yrs. exp. with AS400/iSeries programming including CL, RPG, 2 yrs. exp. using RPG/ILE and 1 yr. exp. using Robot, Implementer and Hawkeye Pathfinder. Refer to Job #IMG100 Lykes Lines Limited, LLC (CP Ships), 401 East Jackson St., Suite 3300, Tampa, Florida 33602.

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Prog/Analyststo design, develop/deploy complex appls using Cold Fusion, Oracle, Java, Jscript, HTML, SQL Server, Cold Fusion App. Server, WebLogic, etc. under Windows OS; analyze functional and user reqand-new tech. to solve business problems; test, troubleshoot and debug appls. Require: B.S. or foreign equiv in CS/Engg (any branch) field with 2 yrs exp in IT. High salary. F/T position. Travel Required. Resume to HR, Smartsoft International, Inc., 4898, South Old Peachtree Rd, Norcross, GA 30071

S/W Enggs to analyze, design develop appls using C++, Java, CORBA, EJB, JDBC, JSP, Rational Rose, CGI, SQL, Oracle, Crystal Reports, Weblogic under Windows/UNIX OS; perform project scoping, project planning project time/cost schedules, quality of deliverables; study, evaluate new tech/methodologies; provide technical guidance for complex user problems. Require: MS or foreign equiv. in CS/Engg. (any branch) & 1 yr exp. in IT. High Salary. F/T. Travel involved. Respond to: HR, Unilinx, Inc., 4625 Alexander Dr., Ste 110, Alpharetta, GA 30022.

**Programmer Analysts:** Plan, design, develop, configure, code, implement & analyze computer programs & systems. Modify existing application and provide systems support. Analyze users requirement to enhance system performance. Req. Bachelor's degree or equivalent in CS, CE, EE (Electrical or Electronic and Communication Engineering). Must be proficient in either C++ , Oracle, PowerBuilder, MCSE, CCIE, Unix Shell-programming, CrystalReports, CCNA, or Rational Rose. 40hr/wk, 9:00 a.m.-5:00 p.m. Send resume to Think Development Systems, Inc., 6292 Lawrenceville Hwy., Suite-C, Tucker, GA 30084.

Software Engineers. Analyze requirements, formulate design, test, modify and develop systems/software applns; using MQ Series, Weblogic, J2EE, RMI, JMS, JDBC, JNDI, JTA, TIBCO, UML, Netscape Directory Server, Oracle, DB2, PL/SQL, etc. to determine feasibility; prepare & design specs; develop testing procedures. Req. BS or Equiv. in edu & exp. in CS/Engg/Maths/related plus 2 yrs exp. Comp. salary. send resume to HR Surecom Inc., 82 West Main Street, Northboro, MA 01532.

Senior Software Engineer (Portland, Oregon) - Responsible for full life-cycle development of object-oriented multithreaded Windows applications using Visual C++ to provide network wide system solutions to report and control network consumption and improve end-user response time. Develop algorithms for Socket based TCP/IP applications to manage distributed components that align network consumption for customers needs. Use Layered Service Provider ("LSP") technology to implement product features. Must have Bach. deg. or equiv. in Comp. Sci., Eng. or related field. Must have 5 yrs of exp. in the job offered or 5 yrs in a position involving full life cycle development of object-oriented Windows applications using Visual C++. Exp. mentioned may have been obtained concurrently and must include: (i) 1 yr of exp. developing algorithms for Windows Socket based TCP/IP applications to manage distributed components; (ii) 2 yrs of exp. building multithreaded apps for Microsoft Windows platform; and (iii) 1 yr of exp. implementing product features using LSP technology. Must be legally authorized to work in the U.S. Please send resume to S. Pandya (REF:SSE), Centrisoft Corp., 707 Southwest Washington, Suite 1200, Portland, OR 97205.

Applications Support Analyst, Ontario, CA. Consult w/ SAP users to identify & analyze SAP processes & issues. Redefine SAP processes, recommend & help implement changes. Change, maintain & document Warehouse SAP processes per ISO 2000. Assist QA Dept. & processes, & act as Internal ISO Auditor for Configuration Ctr. "Write up" user needs, prog. functions, & steps to develop/modify relevant programs & syst; prep. workflow charts & diagrams re same. Help resolve work problems re: flow charts, project specs, programming. BS or equiv + 1 yr experience, incl. QA. Fluent SAP R/3, AllClear, Visual C++ & C++, HTML, ASP, Rational Rose. Send resume to VP, HR, En Pointe Technologies, 100 N. Sepulveda Blvd., 19th Fl., El Segundo, CA 90245.

Programmers to analyze/design database & other software appls using Oracle, SQL, Visual Basic, Active X, FormBuilder etc. under Windows and UNIX OS; develop system spec; enhance and modify existing appls; study, evaluate new tech/methodologies; provide technical guidance for complex user problems. Requires B.S. or foreign equiv. in CS/Engg. (any branch) & 6 months of exp. in IT. Apply by resume to: HR, Fourth Technologies, Inc., 585 Tollgate Rd., Ste I, Elgin, IL 60123.

Senior Software Engineer sought by legal information services co. with office in Glendale, CA. Exp in VB, OOAD methodology, COM, UML, DHTML, XML, ASP, C++/Java, IIS, ADO, C#, .NET, Oracle, Crystal Reports and SQL Server. Analyze, design, develop, test & support web-based e-commerce applications for MS Windows. Resumes to HR Dept., CCH Legal Information Services, Inc., 111 Eighth Ave, NY, NY 10011.

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**Sr. SW Engr.-** As member of SW developmt. team, design & develop SW & sustain co.'s cutting-edge telephony devices. Will develop & enhance serviceability tools & participate in design & code reviews. Will test & integrate telecom products & provide critical bug fixes for customers. In addition, will provide customer SW enhancements & use programming/analytical skills in order to provide services for debugging. Must have B.S. in Comp. Eng'g, Comp.Sci., E.E. or equiv. + 5 yrs. exp. in the job offered or 5 yrs. progressively responsible post-grad. SW developmt. exp. (5yrs. exp. must include at least 2.5 years exp. w/ Telecom SW development.) In the alternative, employer will accept M.S. in stated fields + 2 yrs relevant exp. Must have knowledge in at least one of the following telecom protocols, ISDN or SS7 Call processing, ATM or TCP/IP, as well as strong coding skills in C. 40 hrs/wk; Salary: \$92,833/yr. Send 2 copies of resume to: Case #200201502 and/or 200201644, Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

**Sr. SW Engr.-** Develop, integrate, maintain & test complex communication protocols including, but not limited to: Sigtran, SS7/CCS7 & ISDN. Participate in design & code reviews of new SW & modifica'ns to exist'g SW. Develop, maintain & test telecom applications & system SW responsible for configuring & controlling the system, internal communication between SW entities, fault tolerant & redundant operation of SW. Analyze & document computerized telecom system SW reqs., functional specs., architectural specs. & design specs. Must have M.S. in Comp. Eng'g, Comp. Sci., E.E. or equiv. + 2 yrs. exp. in job offered or 2 yrs. exp. w/telecom SW development. (Exp. may be gained before or after M.S.). In the alternative, employer will accept Bachelor's degree + 5 yrs. of progressively responsible post-grad SW development exp., including 2 yrs. telecom SW developmt. exp. Must have proficiency in C programming, as well as knowledge of telecom protocols. 40 hrs/wk; Salary: \$92,833/yr. Send 2 copies of resume to: Case #200201646, 2002 Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

**Sr. SW Engr.-** As a member of SW developmt. team, design & develop Element/Network Management SW. Will determine SW developmt. process best practices including design & code reviews. Will prepare specs. for Element/Network Management SW. Will design & develop Plexus PlexView Element Manager SW. In addition, will test & integrate EM SW w/ Plexus 9000 & other products developed by the company as applicable. Must have B.S. in Comp. Sci./Eng'g, Electrical/Electronics Eng'g or equiv. + 3 yrs. exp. in job offered or 3 yrs. exp. in SW developmt. Must have developmt. exp. w/ element/network mngmt. SW for the telecom industry. Must have exp. develop'g SW applications on UNIX platforms using Java and/or C/C++. 40 hrs/wk; Salary: \$92,833/yr. Send 2 copies of resume to: Case #200201665, Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

**Sr. SW Engr.-** As member of SW developmt. team, design & develop SW & sustain co.'s cutting-edge telephony devices. Will develop & enhance serviceability tools & participate in design & code reviews. Will test & integrate telecom products & provide critical bug fixes for customers. In addition, will provide customer SW enhancements & use program'g/analytical skills in order to provide services for debugging. Must have M.S. in Comp. Eng'g, Comp. Sci., E.E. or equiv. + 2 yrs. exp. in job offered or 2 yrs. exp. w/Telecom SW developmt. (exp. may be gained before or after M.S.). In the alternative, employer will accept Bachelor's degree + 5 yrs. of progressively responsible post-grad SW developmt. exp. includ'g at least 2.5 yrs. exp. w/telecom SW developmt. Must have knowledge in at least one of the following telecom protocols: ISDN, SS7 Call processing, or TCP/IP as well as strong coding skills in C. 40 hrs/wk; Salary: \$92,833/yr. Send 2 copies of resume to: Case #200201687, Labor Exchange Office, 19 Staniford St., 1st Fl, Boston MA 02114.

**Sr. SW Engr.-** As member of Technical Svcs. SW developmt team, ensure integrity of design, developmt., implementa'n & testing of communications SW for co.'s cutting-edge telecom products. Resolve complex problems caused by anomalies in telecom SW for network sub-systems. Reproduce problems in lab. Isolate SW problems in affected module(s). Develop interim solu'ns to problems. Assess ways to enhance prod. reliability & serviceability. Recommend process improvements to enhance service delivery/offering. Work closely w/sustain'g eng'rs. to find root cause analysis of reported anomalies. Must have B.S. in Comp. Sci./Eng'g, Electrical/Electronics Eng'g or equiv. + 5 yrs. exp. in job offered or 5 yrs. exp. w/ SW developmt. for Telecom Industry. (5 yrs. exp. must be progressively responsible post-grad exp.) Must have in-depth knowledge of telecom protocols (i.e. PRI, SS7, ATM, TCP/IP) & scripting languages (i.e. TCL/Expect, UNIX shell programming & PERL as well as C/C++). Must have exp. diagnosing & solving complex problems in telecom/data networks. 40 hrs/wk; Salary: \$92,833/yr. Send 2 copies of resume to: Case #200201688, Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

**Sr. SW Engr.-** As a member of SW developmt. team, design & develop Element/Network Management SW. Will determine SW development process best practices includ'g design & code reviews. Will prepare specs. for Element/Network Management SW. Will design & develop Plexus PlexView Element Manager SW. In addition, will test & integrate EM SW w/ Plexus 9000 & other products developed by the co. as applicable. Must have B.S. in Comp. Sci./Eng'g, Electrical/Electronics Eng'g or equiv. + 3 yrs. exp. in job offered or 3 yrs. exp. in SW developmt. Must have developmt. exp. w/element/network management SW for telecom industry. Must have exp. develop'g SW applications using Java and/or C/C++. 40 hrs/wk; Sal: \$92,833/yr. Send 2 copies of resume to: Case #200201691, Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

**Sr. SW Engr.-** As a member of Tech. Svcs. SW developmt. team, ensure integrity of design, developmt., implementation & testing of communications SW for co.'s cutting-edge telecom products. Resolve complex problems caused by anomalies in telecom SW or network sub-systems. Reproduce problems in lab. Isolate SW problems in affected module(s). Develop interim solu'ns to problems. Assess ways to enhance product reliability & serviceability. Recommend process improvements to enhance svc. delivery/offering. Work closely w/ sustain'g eng'rs. to find root cause analysis of reported anomalies. Must have B.S. in Comp. Sci./Eng'g, Electronics Eng'g or equiv. + 5 yrs. exp. in job offered or 5 yrs. exp. w/ SW developmt. for Telecom Industry. (5 yrs. exp. must be progressively responsible post-grad exp.) Must have in-depth knowledge of telecom protocols (i.e. ISDN, PRI, SS7, TCP/IP) & scripting languages (i.e. TCL/Expect, UNIX shell programming & PERL as well as C/C++). Must have exp. diagnos'g & solv'g complex problems in telecom/data networks. 40 hrs/wk; Salary: \$92,833/yr. Send 2 copies of resume to: Case #200201704, Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

**Sr. SW Engr.-** Develop, integrate, maintain & test complex communication protocols including, but not limited to: Sigtran, SS7/CCS7 & ISDN. Participate in design & code reviews of new SW & modifica'ns to exist'g SW. Develop, maintain & test telecom applications & system SW responsible for configuring & controlling the system, internal communication between SW entities, fault tolerant & redundant operation of SW. Analyze & document computerized telecom system SW reqs., functional specs., architectural specs. & design specs. Must have M.S. in Comp. Sci./Eng'g, Electrical/Electronics or equiv. + 2 yrs. exp. in job offered or 2 yrs. exp. w/telecom SW development. (Exp. may be gained before or after M.S.). In the alternative, employer will accept Bachelor's degree + 5 yrs. of progressively responsible post-grad SW developmt. exp., including 2 yrs. telecom SW developmt exp. Must have proficiency in C programming, as well as knowledge of telecom protocols. 40 hrs/wk; Sal: \$92,833/yr. Send 2 copies of resume to: Case #200201706, 2002 Labor Exchange Office, 19 Staniford St 1st Fl, Boston MA 02114.

**Business Analyst for NYC IT co** to research & analyze mktg & fin'l condns incl accts & target clients & eval alternatives to improve & expand scope of current operations & present recommendations. Analyze current fin'l strategies & present alternative methods of improving fin'l condition. Analyze svcs & operations & recommend alternative procedures to increase efficiency. Analyze industry conditions, rules & regs. Utilize d/base & spreadsheet s/ware to prep reports. Dvlp & integrate new mgmt systems & conduct research. Bach/equiv in Bus Admin & 2 yrs exp. Will accept 3-yr college in specified fields & 2 1/2 yrs in job offd. Systec Int'l, Inc, 350 5th Ave, Ste 7812, NY, NY 10018, fax (212) 290-2889, systec@systecusa.com.

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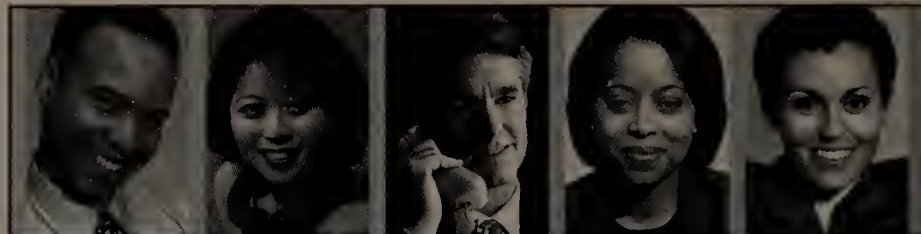
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**Programmers to analyze/develop software apps** using Oracle Apps, Oracle, PL/SQL, Dev 2000, etc under Windows/UNIX OS; assist in customizing and migrating Oracle App; customize Forms/Reports using Oracle Application standards; document development process. Require: BS or foreign equiv. in CS/Engg. (any branch) & 6 months of exp. In lieu of BS, 3yrs of academic studies towards a Bachelor's degree plus 1 yr of exp in IT will be accepted. Travel involved. F/T position. Competitive salary. Resume to: HR, Quest America, Inc., 211 East Ontario Street, Suite 1800, Chicago, IL 60611

**Application Analysts & Developers,** OH & VA. Software (Reynolds DMS & Automark products) apps design & development using Visual InterDev, BTW (Branded Flow Technology) VB, VC++, Businessware, SQL Server 2000 & ASP/IIS 5.0. Req. BS in comp sci, engg, or related field & 1-2 yr exp in programming, developing, or analysis. Resumes to: K. Cramer, Reynolds & Reynolds, POB 2608, Dayton OH 45401.



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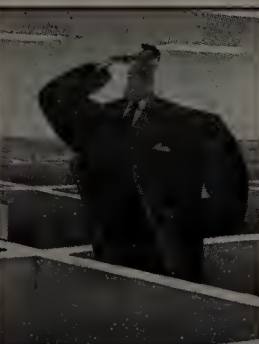
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**Computer Professional (Multiple Openings)** W/exp in one or more of the following: C/C++, JAVA, Power Builder, Visual Basic, Oracle, Developer 2000, Sybase, Windows, Unix Admin, People Soft, SQL Server, SAP, Oracle Financials, Cobol, Db2, Cics, MVS, JCL, AS/400 Lucrative compensation. Please E-mail your Resumes to the following address: [INFO@ADVANSOFTUSA.COM](mailto:INFO@ADVANSOFTUSA.COM)  
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# Lack of Licensing Revives Criticism of Settlement

Microsoft's terms draw DOJ's concern

BY PATRICK THIBODEAU  
WASHINGTON

**A** KEY PROVISION of the U.S. settlement with Microsoft Corp., the licensing of server interoperability protocols, has attracted scant interest from vendors. And that has brought renewed criticism of the settlement, which was announced nearly two years ago.

Only four companies have received licenses under the settlement, including two major storage vendors, according to a report released last week by the U.S. Department of Justice (DOJ) assessing the settlement. The administration and states that backed the settlement criticized Microsoft's li-

## MICROSOFT SETTLEMENT

censing terms in the report.

But two of the companies that acquired licenses, EMC Corp. in Hopkinton, Mass., and Network Appliance Inc. in Sunnyvale, Calif., said the licenses will be used to assure corporate customers that their

storage products won't be hindered by interoperability problems with Microsoft products.

"We see it as highly beneficial," said Mike O'Neill, senior director for strategic alliances at Network Appliance. "It becomes very valuable to a customer to know that the solution that they are investing in... has a pretty lengthy half-life to it," he said.

The protocols will be used in network-attached storage

(NAS) products — special-purpose file servers that sit in front of storage arrays, interact with Microsoft servers and allow file access over a network.

Tom Joyce, senior director of NAS product marketing at EMC, said the license means that if Microsoft changes technology direction, "we're in sync with them." Without the license, EMC would have to reverse-engineer the protocols.

Steve Kenniston, an analyst at Enterprise Storage Group Inc. in Milford, Mass., said, "The fear has always been that no matter what you did, Microsoft could change the rules on you."

But the royalties, rates and other terms that Microsoft set for the licenses have raised government concern. According to the DOJ report, "further steps may need to be taken" on the licensing terms, includ-

## From 20 to 1

**THEN:** 20 states, later joined by the Clinton administration, sued Microsoft in 1998, charging the company with antitrust violations.

**NOW:** Massachusetts is the only state still pursuing an appeal of U.S. District Judge Colleen Kollar-Kotelly's ruling that the Bush administration-backed settlement was in the public interest. West Virginia, the other holdout, settled in June.

**NEXT:** The U.S. Court of Appeals will hold a hearing Nov. 4 on Massachusetts' appeal.

ing possible new court orders. A hearing is set for July 24.

The two other companies receiving licenses are VeriSign Inc. in Mountain View, Calif., which plans to use protocols in its security work, and media developer Starbak Communications Inc. in Waltham, Mass.

Microsoft spokesman Jim Desler said the company is working with the government on the licensing terms and is

open to additional changes.

"We welcome government feedback, and hopefully, through a constructive process, we can make refinements and adjustments to the program," he said.


But Microsoft critics, including trade groups representing the company's rivals, say the paucity of companies acquiring licenses affirms their earlier complaints.

The "settlement is meaningless," said Edward Black, president of the Computer & Communications Industry Association in Washington, who said the agreement gave Microsoft too much power to set licensing terms and conditions.

But Hilliard Sterling, an antitrust expert at Much Shelist Freed Denenberg Ament & Rubenstein PC in Chicago, said the licensing outcome "may be indicative of the absence of any real need." ▀

## COURT COVERAGE

To gain access to all stories on the Microsoft antitrust case, visit our Web site:

 **QuickLink s1100**  
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## MCI Contracts

while a Government Services Administration review is under way, according to published reports.

David Drabkin, deputy associate administrator for acquisition policy at the GSA, acknowledged that his office is working on a formal request by the GSA's inspector general to determine whether MCI is "presently responsible" or if it should be suspended or debarred [QuickLink 39203].

"In this case, the recommendation that came from our [inspector general] wasn't accompanied by any in-depth investigative work showing what the processes were that failed in the company and that possibly led to them not being

presently responsible," said Drabkin. "We have to get a little more information before we decide."

The ramifications of debarment could be enormous for government agencies. MCI remains a critical federal contractor, holding either prime or subcontractor status on a wide range of contracts, including vital U.S. Department of Defense programs.

## Major Disruption

In a May 30 memorandum, GSA General Counsel Raymond McKenna stated that any shift away from MCI would disrupt telecommunications services to a broad swath of federal agencies, including military, law enforcement and homeland security organizations.

"Long-distance voice ser-

vice to the Pentagon, the FBI's Trilogy data network, the National Weather Service's Weather Net, the Social Security Administration's national voice and data networks and the Centers for Medicare and Medicaid Service's Medicare/Medicaid Hotline could be jeopardized," wrote McKenna.

Also, MCI's prices remain the best choice for the government, McKenna said, adding that agencies would likely have to bear "multimillion-dollar expenses" to switch to other carriers.

Vance Hitch, CIO at the U.S. Department of Justice, acknowledged that a suspension or debarment could disrupt services and introduce new expenses, especially for the FBI's Trilogy program — a \$400 million network effort

started in March.

"The FBI has just gone through a very aggressive and high-risk effort to get Trilogy in place and stable," he said. "It would be very disruptive to have to back off that and change."

A spokesman for the Defense Information Systems Agency (DISA), the Defense Department's telecommunications and network management agency, said a thorough review of all MCI contracts is now under way, and officials are evaluating alternative service providers to minimize the impact if MCI is debarred.

The DISA spokesman noted that some existing contracts, particularly those related to national security, may remain in effect after any suspension or debarment.

Ken Smalling, a spokesman

for Electronic Data Systems Corp., which relies on MCI for wide-area network services for its \$6.9 billion Navy/Marine Corps Intranet (N/MCI) contract, said Plano, Texas.-based EDS has the relationships in place to switch to alternative service providers if necessary. He added that so far, MCI has met or exceeded service requirements under the N/MCI contract [QuickLink 39264].

Morton Bahr, president of the Washington-based Communications Workers of America, which supports debarment of MCI, said the government has plenty of viable alternatives. "Clearly, both AT&T and Sprint, with national networks that equal and surpass that of MCI, [would] have no problem handling all available business," said Bahr. ▀



FRANK HAYES ■ FRANKLY SPEAKING

# Open for Business

**W**HAT, OH WHAT, has happened to these open-source people? At last week's O'Reilly Open Source Convention in Portland, Ore., I didn't hear a lot about the philosophy and politics of "the movement." I didn't hear bitter fights over which open-source license is best, or endless fretting about the confusion over what the *free* in free software means — free as in beer? Free as in ride? Free as in not in jail?

What I did hear a lot about was business.

And not just the business of selling Linux operating systems, or selling hardware bundled with MySQL databases, or selling services to install and maintain Apache Web servers and Perl scripts. No, these open-source people were talking about the kind of business issues that matter to corporate IT: how to cost-justify projects, how to stay connected with user needs, how a company can innovate by *using* free software — not just profit by selling it.

So here was book publisher Tim O'Reilly, sponsor of the conference, talking about a paradigm shift in business models, in which "open-source application" doesn't just mean OpenOffice but also refers to Google and Yahoo and Amazon.com — companies running on open-source software but using it in some very proprietary ways.

And over there was Ward Cunningham, one of the creators of the extreme programming approach to software development, talking about Fit, an open-source testing tool designed to link managers, developers and business users while applications are being developed.

Wait — managers? Business models? Since when does the unstructured, unbusinesslike open-source world worry about this stuff? And O'Reilly and Cunningham weren't alone — the program was full of presentations on open-source business models that matter to corporate IT, not just Red Hat wannabes, and on open-source software and techniques that apply directly to what corporate IT shops do.

What happened to all the anti-capitalist, anticorporate rhetoric that used to make the free-software crowd so easy for corporate IT people to dismiss? Oh, it's still around. It's just not where the action is anymore.

Now the action lies in doing business with open-source.

That means staying focused on the fact that you get your business advantage from your data, not your applications. And the fact that business conditions change constantly, so your software has to keep changing or it will fall out of sync. And the fact that real enterprise software depends on the people who use it as much as those people depend on the software.

Yeah, that's all stuff they were discussing in Portland. A long way from debates about politics, isn't it?

No wonder every big software vendor is playing an open-source card. Open-source is more focused on IT for doing business than those other vendors are. In fact, it's more focused on that challenge than many corporate IT people.

And today, that makes open-source a real threat to the status quo for both vendors and IT shops. It's one thing to change the way software is built and distributed. It's far more radical to change the way IT is used to do business.

All of which should be a wake-up call for corporate IT. Paying close attention to open-source is no longer optional. You don't have to buy open-source philosophy or politics or even

products. But if open-source really is where the interesting thinking about IT and business is being done, you need to stay on top of it.

So pay attention to open-source. Track it. If you spot a good idea, steal it or adapt it or repurpose it. Let the open-source crowd do the heavy lifting; you can cherry-pick whatever is most innovative or interesting or useful to you.

Just don't ignore it — or in a few years, you could be wondering what, oh what, has happened to your IT shop. ▀



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## Switcheroo

PCs are randomly dropping off the network, and this big contractor is about to lose the contract because of it. In a last-ditch effort, consultant pilot fish is called in, and he finds the problem: a network switch he knows from experience is flaky. But why didn't the contractor's staff spot it? "When they were testing, they used a packet sniffer and had to replace that switch with a hub so they could monitor both sides simultaneously," sighs fish. "Then they put it back before they left."

## Stuck

User tells support pilot fish that she knocked a key off her lap-

top. She replaced it, but now it won't work. Is the key loose? fish asks.

"Not now," user replies. What do you mean, not now? fish asks. "It was loose, but I fixed it," user says. "I used super glue."



plaint? Fish groans, "They said she wasn't providing adequate pro-

gramming coverage for the department."

## Shrunk

Pilot fish notices that the nearly finished new computer room uses the 6'8" door from the old glass house. The equipment racks are 6'7", fish says — how will we get them in? "Roll them from the old room into the new one," says contractor. But the new room has an 8-inch raised floor, fish points out. "The design was quickly modified," he says, "to include an 8-foot door."

## Stopped

It's the late 1960s, and this pilot fish discovers — the hard way — that if anyone hits the mainframe's stop button, the start button won't restart it: it has to be completely rebooted. Luckily, a vendor engineer and his boss are visiting, and fish describes the problem. "Impossible," engineer says. "Let me show you." Says fish, "I still remember me and his boss yelling 'No!' as he reached out and hit the stop button."

## Stymied

After top management lays off every programmer in the department except him, overworked pilot fish takes a vacation day. When he returns, he finds out his manager is in hot water with the boss. The com-

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The to-do list for IT security gets longer every year. This report  
will help you set priorities for what needs to get done now

## EXECUTIVE BRIEFINGS

### Security Agenda

The to-do list for IT security gets longer every year. This report  
will help you set priorities for what needs to get done now

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